Chemical Analysis Report

SE-DIST-2017-09-01-01

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

Event Description: **SMP- C-23 Sonde pickup**
Request ID: **RQ-2017-08-28-48**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
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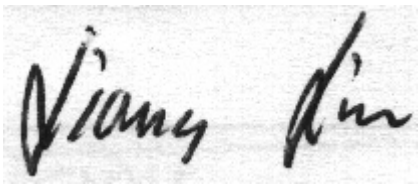
Certified by: Liang Lin, Environmental Administrator

Date Certified: 27-SEP-2017 09:47



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: C-23 UPSTREAM OF S-97 **Collection Date/Time: 08/31/2017 11:45**

Field ID: G2SE0004 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927177	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P331210	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P331707	
		Sulfate	41		mg SO4/L	P331709	
	SM 2120 B	Color (true)	220		PCU	P331213	
	SM 2320 B-97	Total Alkalinity	159		mg CaCO3/L	P331537	
	SM 2540 C-97	TDS	528		mg/L	P331550	
	SM 2540 D-97	TSS	2	U	mg/L	P331581	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P331540	
1927178	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P331462	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P331306	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P331316	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P331259	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P331763	
1927179	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P331206	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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: P331210

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331707

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331709

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331462

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331306

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: P331316

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331259

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331206

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

Reference Method: SM 2120 B
Batch ID: P331213

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331537

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

Reference Method: SM 2540 C-97
Batch ID: P331550

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331581

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P331540

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P331763

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: P331707

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331709

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331462

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: P331306

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: P331316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331206

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

Reference Method: SM 2320 B-97
Batch ID: P331537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P331540

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P331763

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927392	Chloride	95.8		P	90 - 110
1927394	Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927392	Sulfate	94.6		P	90 - 110
1927394	Sulfate	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927117	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927400	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927086	NO2NO3-N	99.7	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927110	Total-P	94.3	93.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927004	O-Phosphate-P	95.7	96.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P331540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927007	Fluoride	98.3	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P331763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927449	Organic Carbon	100		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927107	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927392	Chloride	1.79	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927117	Ammonia-N	0.344	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927400	Kjeldahl Nitrogen	0.252	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927086	NO2NO3-N	2.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331259

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

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927110	Total-P	0.670	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927004	O-Phosphate-P	0.385	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927261	Color (true)	0.198	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P331537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927007	Total Alkalinity	0.221	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P331550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927116	TDS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P331540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927007	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P331763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927449	Organic Carbon	0.252	Spike	P	0 - 20

* 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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78758
Included Lab Sample IDs: 1927179

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78760
Included Lab Sample IDs: 1927177

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

Reference Method: SM 2120 B
Run ID: A78761
Included Lab Sample IDs: 1927177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	102	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78790
Included Lab Sample IDs: 1927178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78799
Included Lab Sample IDs: 1927178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A78843
Included Lab Sample IDs: 1927178

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A78858
Included Lab Sample IDs: 1927178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	99.6	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A78874
Included Lab Sample IDs: 1927177

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A78874
Included Lab Sample IDs: 1927177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78948
Included Lab Sample IDs: 1927177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	100	P/P	90 - 110
Sulfate	98.1	98.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A78968
Included Lab Sample IDs: 1927178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.4	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					0.0	
EPA 300.0 Rev. 2.1	Chloride	96.1	95.8	95.8		1.79	
	Sulfate	95.1	94.6	94.7			
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	102			0.344
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	101			0.252
EPA 353.2 Rev. 2.0	NO2NO3-N	103	99.7	97.2			2.03
EPA 365.1 Rev. 2.0	Total-P	94.0	94.3	93.5			0.670
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	95.7	96.1			0.385
SM 2120 B	Color (true)					0.198	
SM 2320 B-97	Total Alkalinity	103				0.221	
SM 2540 C-97	TDS					6.90	
SM 4500 F-C-97	Fluoride	99.3	98.3	98.3			0.0
SM 5310 B-00	Organic Carbon	95.5	100				0.252

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1927177
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1927177
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1927177

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1927178
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1927178
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1927178
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1927178
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1927179
SM 2120 B / E31780	True Color measured at 450 nm	1927177
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1927177
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1927177
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1927177
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1927177
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1927178

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	09/01/2017			09/01/2017 16:50	Tanya Welborn	1927177
EPA 300.0 Rev. 2.1	09/01/2017			09/15/2017	Julia Storbeck	1927177
EPA 350.1 Rev. 2.0	09/01/2017			09/06/2017	Sofia Elnemr	1927178
EPA 351.2 Rev. 2.0	09/01/2017	09/06/2017	Adrian Shelby	09/07/2017	Joseph Suarez	1927178
EPA 353.2 Rev. 2.0	09/01/2017			09/06/2017	Beverly Y. Sanders	1927178
EPA 365.1 Rev. 2.0	09/01/2017	09/05/2017	Sima Feizi	09/06/2017	Lipi Saha	1927178
EPA 365.1 Rev. 2.0 dissolved	09/01/2017			09/01/2017 15:12	Megan Treadwell	1927179
SM 2120 B	09/01/2017			09/01/2017 16:11	Tanya Welborn	1927177
SM 2320 B-97	09/01/2017			09/08/2017	Dale L. Simmons	1927177
SM 2540 C-97	09/01/2017			09/06/2017	Yijie Li	1927177
SM 2540 D-97	09/01/2017			09/06/2017	Yijie Li	1927177
SM 4500 F-C-97	09/01/2017			09/08/2017	Dale L. Simmons	1927177
SM 5310 B-00	09/01/2017			09/15/2017	Sofia Elnemr	1927178