Chemical Analysis Report

SW-DIST-2016-12-15-02

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

Event Description: **Klosterman**
Request ID: **RQ-2016-12-12-39**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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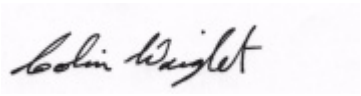
Certified by: Colin Wright, Program Administrator

Date Certified: 06-JAN-2017 11:25



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: Klosterman N **Collection Date/Time: 12/14/2016 10:15**

Field ID: G5SW0039 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1858360	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P316881	
	EPA 300.0 Rev. 2.1	Chloride	5.8E+03		mg Cl/L	P317357	
		Sulfate	810		mg SO4/L	P317363	
	SM 2120 B	Color (true)	43		PCU	P316877	
	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P317267	
	SM 2540 C-97	TDS	1.02E+04		mg/L	P317434	
	SM 2540 D-97	TSS	28	J	mg/L	P317153	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P317272	
1858361	EPA 350.1 Rev. 2.0	Ammonia-N	0.34		mg N/L	P317455	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P317517	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P317535	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P317247	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P316951	
1858362	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.24		mg P/L	P316872	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The result may be biased high due to high conductivity.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316881

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317357

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317363

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317455

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317517

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: P317535

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316872

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

Reference Method: SM 2120 B
Batch ID: P316877

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P317267

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

Reference Method: SM 2540 C-97
Batch ID: P317434

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317153

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P317272

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316951

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: P317357

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317455

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: P317517

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317247

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P317267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P317272

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P316951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858673	Chloride	97.6		P	90 - 110
1858674	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858673	Sulfate	91.7		P	90 - 110
1858674	Sulfate	91.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858207	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1860199	Kjeldahl Nitrogen	101	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858361	NO2NO3-N	105	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858207	Total-P	91.7	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858188	O-Phosphate-P	97.5	99.2	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P317272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858661	Fluoride	96.8	99.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1858314	Organic Carbon	96.5	96.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858312	Turbidity	1.63	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858673	Chloride	0.246	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858673	Sulfate	0.170	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858207	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1860199	Kjeldahl Nitrogen	2.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317535

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: P317535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858361	NO2NO3-N	4.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858207	Total-P	5.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858188	O-Phosphate-P	1.45	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858171	Color (true)	1.33	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P317267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858661	Total Alkalinity	0.382	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P317434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858180	TDS	0.580	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P317272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858661	Fluoride	2.57	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1858314	Organic Carbon	0.237	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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73406
Included Lab Sample IDs: 1858362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	96.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A73407
Included Lab Sample IDs: 1858360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73408
Included Lab Sample IDs: 1858360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A73434
Included Lab Sample IDs: 1858361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	97.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A73550
Included Lab Sample IDs: 1858360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73550
Included Lab Sample IDs: 1858360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73569
Included Lab Sample IDs: 1858361

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73576
Included Lab Sample IDs: 1858360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.4	P/P	90 - 110
Sulfate	96.7	92.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73601
Included Lab Sample IDs: 1858361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73633
Included Lab Sample IDs: 1858361

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: A73662
Included Lab Sample IDs: 1858361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	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					1.63	
EPA 300.0 Rev. 2.1	Chloride	101	97.6	99.1		0.246	
	Sulfate	92.1	91.7	91.5		0.170	
EPA 350.1 Rev. 2.0	Ammonia-N	102	104	105			1.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	101	98.4			2.14
EPA 353.2 Rev. 2.0	NO2NO3-N	102	105	99.2			4.54
EPA 365.1 Rev. 2.0	Total-P	96.8	91.7	96.8			5.21
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	97.5	99.2			1.45
SM 2120 B	Color (true)					1.33	
SM 2320 B-97	Total Alkalinity	99.6				0.382	
SM 2540 C-97	TDS					0.580	
SM 4500 F-C-97	Fluoride	97.6	96.8	99.9			2.57
SM 5310 B-00	Organic Carbon	99.4	96.5	96.7			0.237

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1858360
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1858360
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1858360
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1858361
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1858361
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1858361
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1858361
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1858362
SM 2120 B / E31780	True Color measured at 450 nm	1858360
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1858360
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1858360
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1858360
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1858360
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1858361

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	12/15/2016			12/15/2016 15:19	Julie Michelle Frank	1858360
EPA 300.0 Rev. 2.1	12/15/2016			12/23/2016	Ping Hua	1858360
EPA 350.1 Rev. 2.0	12/15/2016			12/27/2016	Julie Michelle Frank	1858361
EPA 351.2 Rev. 2.0	12/15/2016	12/29/2016	Adrian Shelby	12/30/2016	Joseph Suarez	1858361
EPA 353.2 Rev. 2.0	12/15/2016			12/28/2016	Beverly Y. Sanders	1858361
EPA 365.1 Rev. 2.0	12/15/2016	12/22/2016	Vijayalakshmi Reddy	12/23/2016	Lipi Saha	1858361
EPA 365.1 Rev. 2.0 dissolved	12/15/2016			12/15/2016 14:58	Julia Storbeck	1858362
SM 2120 B	12/15/2016			12/15/2016 16:15	Jared I. Manley	1858360
SM 2320 B-97	12/15/2016			12/22/2016	Dale L. Simmons	1858360
SM 2540 C-97	12/15/2016			12/19/2016	Sima Feizi	1858360
SM 2540 D-97	12/15/2016			12/19/2016	Sima Feizi	1858360
SM 4500 F-C-97	12/15/2016			12/22/2016	Dale L. Simmons	1858360
SM 5310 B-00	12/15/2016			12/16/2016	Julie Michelle Frank	1858361