Chemical Analysis Report

WQAP-2017-11-08-10

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

Event Description: **Mattress Drain**
Request ID: **RQ-2017-11-06-72**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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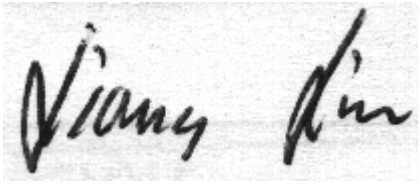
Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-DEC-2017 11:22



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: MATTRESS DRAIN **Collection Date/Time: 11/07/2017 10:00**

Field ID: G4SW0092 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1944401	EPA 180.1 Rev. 2.0	Turbidity	22		NTU	P335009	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P335190	
		Sulfate	0.69		mg SO4/L	P335192	
	SM 2120 B	Color (true)	420		PCU	P334984	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P335377	
	SM 2540 C-97	TDS	128		mg/L	P335604	
	SM 2540 D-97	TSS	20		mg/L	P335584	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P335381	
1944402	EPA 350.1 Rev. 2.0	Ammonia-N	0.83		mg N/L	P335759	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.6		mg N/L	P335874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P335539	
	EPA 365.1 Rev. 2.0	Total-P	1.2		mg P/L	P335296	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P335512	
1944403	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.89		mg P/L	P335001	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335009

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335190

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335192

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335759

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335874

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335874

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335539

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335296

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335001

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

Reference Method: SM 2120 B
Batch ID: P334984

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335377

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

Reference Method: SM 2540 C-97
Batch ID: P335604

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335584

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335381

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P335512

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: P335190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335192

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335759

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335874

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335539

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335296

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: P335001

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

Reference Method: SM 2320 B-97
Batch ID: P335377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P335377

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

Reference Method: SM 4500 F-C-97
Batch ID: P335381

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944924	Chloride	97.7		P	90 - 110
1944925	Chloride	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335192

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944925	Sulfate	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1945776	Kjeldahl Nitrogen	99.2	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944222	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944859	Total-P	99.5	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944233	O-Phosphate-P	96.5	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944887	Fluoride	100	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P335512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944219	Organic Carbon	95.6	96.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944316	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944924	Chloride	0.682	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944924	Sulfate	0.148	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944317	Ammonia-N	0.502	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1945776	Kjeldahl Nitrogen	2.22	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944222	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944859	Total-P	0.614	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944233	O-Phosphate-P	1.76	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P334984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944130	Color (true)	0.384	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944887	Total Alkalinity	0.331	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944273	TDS	7.36	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944887	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944219	Organic Carbon	0.549	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: A80138
Included Lab Sample IDs: 1944401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	107	108	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80149
Included Lab Sample IDs: 1944403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.0	93.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80151
Included Lab Sample IDs: 1944401

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80230
Included Lab Sample IDs: 1944401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	103	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A80294
Included Lab Sample IDs: 1944401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80294
Included Lab Sample IDs: 1944401

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80313
Included Lab Sample IDs: 1944402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A80341
Included Lab Sample IDs: 1944402

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80358
Included Lab Sample IDs: 1944402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.0	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80450
Included Lab Sample IDs: 1944402

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80585
Included Lab Sample IDs: 1944402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	101	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	98.4	97.7	97.1		0.682	
	Sulfate	98.8	99.2			0.148	
EPA 350.1 Rev. 2.0	Ammonia-N	105					0.502
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	99.2	104			2.22
EPA 353.2 Rev. 2.0	NO2NO3-N	105	102				0.0
EPA 365.1 Rev. 2.0	Total-P	104	99.5	100			0.614
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	96.5	99.5			1.76
SM 2120 B	Color (true)					0.384	
SM 2320 B-97	Total Alkalinity	103				0.331	
SM 2540 C-97	TDS					7.36	
SM 4500 F-C-97	Fluoride	99.0	100	100			0.0
SM 5310 B-00	Organic Carbon	98.8	95.6	96.6			0.549

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	1944401
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1944401
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1944401
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1944402
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1944402
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1944402
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1944402
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1944403
SM 2120 B / E31780	True Color measured at 450 nm	1944401
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1944401
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1944401
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1944401
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1944401
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1944402

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	11/08/2017			11/08/2017 17:35	DeAsia Armster	1944401
EPA 300.0 Rev. 2.1	11/08/2017			11/13/2017	Julia Storbeck	1944401
EPA 350.1 Rev. 2.0	11/08/2017			11/21/2017	Sofia Elnemr	1944402
EPA 351.2 Rev. 2.0	11/08/2017	11/27/2017	Adrian Shelby	11/28/2017	Joseph Suarez	1944402
EPA 353.2 Rev. 2.0	11/08/2017			11/17/2017	Beverly Y. Sanders	1944402
EPA 365.1 Rev. 2.0	11/08/2017	11/15/2017	Sima Feizi	11/16/2017	Lipi Saha	1944402
EPA 365.1 Rev. 2.0 dissolved	11/08/2017			11/08/2017 15:53	Megan Treadwell	1944403
SM 2120 B	11/08/2017			11/08/2017 15:58	Tanya Welborn	1944401
SM 2320 B-97	11/08/2017			11/15/2017	Dale L. Simmons	1944401
SM 2540 C-97	11/08/2017			11/09/2017	Yijie Li	1944401
SM 2540 D-97	11/08/2017			11/09/2017	Yijie Li	1944401
SM 4500 F-C-97	11/08/2017			11/15/2017	Dale L. Simmons	1944401
SM 5310 B-00	11/08/2017			11/17/2017	Ping Hua	1944402