

Chemical Analysis Report

WQAP-2017-11-15-02

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-2017-11-13-52**
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: Colin Wright, Program Administrator

Date Certified: 12-DEC-2017 14:14

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light gray rectangular background.

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: 11/14/2017 10:18

Field ID: G4SW0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1946365	EPA 180.1 Rev. 2.0	Turbidity	34		NTU	P335360	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P335409	
		Sulfate	0.82		mg SO4/L	P335411	
	SM 2120 B	Color (true)	500	A	PCU	P335398	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P335627	
	SM 2540 C-97	TDS	156		mg/L	P335829	
	SM 2540 D-97	TSS	32		mg/L	P335836	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P335631	
1946366	EPA 350.1 Rev. 2.0	Ammonia-N	0.065		mg N/L	P336209	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	4.0		mg N/L	P336562	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.45		mg N/L	P335889	
	EPA 365.1 Rev. 2.0	Total-P	1.2		mg P/L	P335670	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P335862	
1946367	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.90		mg P/L	P335390	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 5310 B-00: 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: P335360

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335409

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335411

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P336209

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P336562

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: P335889

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335670

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335390

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

Reference Method: SM 2120 B
Batch ID: P335398

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335627

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

Reference Method: SM 2540 C-97
Batch ID: P335829

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335836

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335631

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P335862

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: P335409

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335411

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336209

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335889

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335670

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P335627

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

Reference Method: SM 4500 F-C-97
Batch ID: P335631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P335862

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946320	Chloride	98.9		P	90 - 110
1946491	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946320	Sulfate	102		P	90 - 110
1946491	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946412	Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949621	Kjeldahl Nitrogen	95.6	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946358	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946377	Total-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946200	O-Phosphate-P	94.9	99.9	P/P	90 - 110

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946349	Turbidity	4.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946491	Chloride	1.40	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946491	Sulfate	1.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946412	Ammonia-N	0.213	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949621	Kjeldahl Nitrogen	1.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946358	NO2NO3-N	0.251	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946377	Total-P	1.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946200	O-Phosphate-P	4.10	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P335398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946365	Color (true)	6.90	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946582	Total Alkalinity	0.331	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946350	TDS	6.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946582	Fluoride	0.927	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946366	Organic Carbon	0.456	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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A80230
Included Lab Sample IDs: 1946365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	99.8	P/P	90 - 110
Sulfate	99.4	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80289
Included Lab Sample IDs: 1946365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A80298

Included Lab Sample IDs: 1946367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	98.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A80299

Included Lab Sample IDs: 1946365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	85 - 115

Reference Method: SM 2320 B-97

Run ID: A80383

Included Lab Sample IDs: 1946365

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

Reference Method: SM 4500 F-C-97

Run ID: A80383

Included Lab Sample IDs: 1946365

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80452

Included Lab Sample IDs: 1946366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A80498

Included Lab Sample IDs: 1946366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80510

Included Lab Sample IDs: 1946366

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80627

Included Lab Sample IDs: 1946366

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80797

Included Lab Sample IDs: 1946366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	98.8	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.13	
EPA 300.0 Rev. 2.1	Chloride	101	96.2 98.9		1.40	
	Sulfate	101	100 102		1.18	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	105 104			0.213
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2	95.6 97.3			1.14
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101			0.251
EPA 365.1 Rev. 2.0	Total-P	98.8	100 102			1.66
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	94.9 99.9			4.10
SM 2120 B	Color (true)				6.90	
SM 2320 B-97	Total Alkalinity	103			0.331	
SM 2540 C-97	TDS				6.35	
SM 4500 F-C-97	Fluoride	101				0.927
SM 5310 B-00	Organic Carbon	101				0.456

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1946365
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1946365
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1946365
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1946366
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1946366
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1946366
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1946366
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1946367
SM 2120 B / E31780	True Color measured at 450 nm	1946365
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1946365
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1946365
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1946365
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1946365
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1946366

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	11/15/2017			11/15/2017 16:32	DeAsia Armster	1946365
EPA 300.0 Rev. 2.1	11/15/2017			11/16/2017	Julia Storbeck	1946365
EPA 350.1 Rev. 2.0	11/15/2017			11/30/2017	Sofia Elnemr	1946366
EPA 351.2 Rev. 2.0	11/15/2017	12/07/2017	Adrian Shelby	12/08/2017	Joseph Suarez	1946366
EPA 353.2 Rev. 2.0	11/15/2017			11/27/2017	Lauren Bottorf	1946366
EPA 365.1 Rev. 2.0	11/15/2017	11/21/2017	Adrian Shelby	11/21/2017	Lipi Saha	1946366
EPA 365.1 Rev. 2.0 dissolved	11/15/2017			11/15/2017 15:36	Megan Treadwell	1946367
SM 2120 B	11/15/2017			11/15/2017 16:28	Tanya Welborn	1946365
SM 2320 B-97	11/15/2017			11/18/2017	Dale L. Simmons	1946365
SM 2540 C-97	11/15/2017			11/20/2017	Yijie Li	1946365
SM 2540 D-97	11/15/2017			11/20/2017	Yijie Li	1946365
SM 4500 F-C-97	11/15/2017			11/18/2017	Dale L. Simmons	1946365
SM 5310 B-00	11/15/2017			11/21/2017	Ping Hua	1946366