Chemical Analysis Report

SW-DIST-2016-02-26-01

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

Event Description: **1282H,1282I,8043**
Request ID: **RQ-2016-02-22-14**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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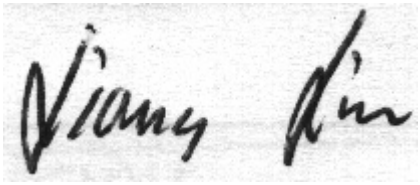
Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-MAR-2016 09:41



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: G1SW0050 **Collection Date/Time: 02/25/2016 10:15**

Field ID: G1SW0050 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775038	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P299407	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P299825	
	SM 2540 D-97	TSS	2	U	mg/L	P299791	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P299768	
1775041	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P300069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P299726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P299709	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P299744	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P299695	
1775044	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299373	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: G5SW0109 **Collection Date/Time: 02/25/2016 11:10**

Field ID: G5SW0109 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775045	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P299373	

Sample Location: G5SW0110 **Collection Date/Time: 02/25/2016 11:45**

Field ID: G5SW0110 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775046	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P299375	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299407

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299726

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: P299709

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299744

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299375

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

Reference Method: SM 2320 B-97
Batch ID: P299825

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

Reference Method: SM 2540 D-97
Batch ID: P299791

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299695

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

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: P299726

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299709

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: P299744

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299375

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

Reference Method: SM 2320 B-97
Batch ID: P299825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774948	Ammonia-N	99.1	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774947	Kjeldahl Nitrogen	97.9	92.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775041	NO2NO3-N	96.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774947	Total-P	103	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774826	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775046	O-Phosphate-P	97.5	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774946	Fluoride	96.3	96.8	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774895	Organic Carbon	92.8	93.2	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299407

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774945	Turbidity	4.26	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300069

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774948	Ammonia-N	0.174	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299726

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774947	Kjeldahl Nitrogen	3.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299709

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775041	NO2NO3-N	1.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299744

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774947	Total-P	5.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299373

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774826	O-Phosphate-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299375

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775046	O-Phosphate-P	1.19	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299825

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774946	Total Alkalinity	1.04	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P299768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774946	Fluoride	0.492	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774895	Organic Carbon	0.204	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 365.1 Rev. 2.0 dissolved
Run ID: A67867
Included Lab Sample IDs: 1775044, 1775045, 1775046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	97.7	P/P	90 - 110
O-Phosphate-P	99.4	98.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67879
Included Lab Sample IDs: 1775038

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

Reference Method: SM 5310 B-00
Run ID: A67982
Included Lab Sample IDs: 1775041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A67984
Included Lab Sample IDs: 1775041

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

Reference Method: SM 4500 F-C-97
Run ID: A68004
Included Lab Sample IDs: 1775038

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A68022
Included Lab Sample IDs: 1775038

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68042
Included Lab Sample IDs: 1775041

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68112
Included Lab Sample IDs: 1775041

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68114
Included Lab Sample IDs: 1775041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.4	93.2	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					4.26	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	99.1	99.3			0.174
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.9	97.9	92.4			3.31
EPA 353.2 Rev. 2.0	NO2NO3-N	105	96.0	97.6			1.46
EPA 365.1 Rev. 2.0	Total-P	102	103	109			5.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	100	101			1.19
	O-Phosphate-P	100	97.5	99.0			1.19
SM 2320 B-97	Total Alkalinity	101				1.04	
SM 4500 F-C-97	Fluoride	95.9	96.3	96.8			0.492
SM 5310 B-00	Organic Carbon	99.6	92.8	93.2			0.204

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1775038
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1775041

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1775041
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1775041
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1775041
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1775044, 1775045, 1775046
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1775038
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1775038
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1775038
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1775041

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	02/26/2016			02/26/2016 14:01	Blanca Fach	1775038
EPA 350.1 Rev. 2.0	02/26/2016			03/09/2016	Diana M. Turner	1775041
EPA 351.2 Rev. 2.0	02/26/2016	03/04/2016	Christopher Armour	03/08/2016	Rochelle Y Jackson	1775041
EPA 353.2 Rev. 2.0	02/26/2016			03/03/2016	Peter D. Kaus	1775041
EPA 365.1 Rev. 2.0	02/26/2016	03/04/2016	Christopher Armour	03/07/2016	Lipi Saha	1775041
EPA 365.1 Rev. 2.0 dissolved	02/26/2016			02/26/2016 14:42	Ping Hua	1775046
	02/26/2016			02/26/2016 15:06	Ping Hua	1775044
	02/26/2016			02/26/2016 15:07	Ping Hua	1775045
SM 2320 B-97	02/26/2016			03/05/2016	Dale L. Simmons	1775038
SM 2540 D-97	02/26/2016			03/02/2016	Yijie Li	1775038
SM 4500 F-C-97	02/26/2016			03/04/2016	Dale L. Simmons	1775038
SM 5310 B-00	02/26/2016			03/02/2016	Sofia Elnemr	1775041