

Chemical Analysis Report

SW-DIST-2016-03-09-01

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

Event Description: **8044, 1409C**
Request ID: **RQ-2016-03-07-33**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 28-MAR-2016 11:53



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: G5SW0029

Collection Date/Time: 03/08/2016 11:25

Field ID: G5SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1778576	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P300084	
	SM 2320 B-97	Total Alkalinity	155		mg CaCO3/L	P300588	
	SM 2540 D-97	TSS	3	U	mg/L	P300291	
	SM 4500 F-C-97	Fluoride	0.72		mg F/L	P300591	
1778578	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300566	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P300721	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P300621	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P300614	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P300360	
1778580	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300064	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: The MDL was elevated due to sample matrix interference.

Sample Location: G5SW0061

Collection Date/Time: 03/08/2016 12:20

Field ID: G5SW0061

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1778577	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P300084	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P300588	
	SM 2540 D-97	TSS	3	U	mg/L	P300291	
	SM 4500 F-C-97	Fluoride	0.81		mg F/L	P300591	
1778579	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300566	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P300721	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P300621	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P300614	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P300360	
1778581	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300064	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: The MDL was elevated due to sample matrix interference.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P300084

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300566

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300721

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300621

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300064

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

Reference Method: SM 2320 B-97
Batch ID: P300588

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

Reference Method: SM 2540 D-97
Batch ID: P300291

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300360

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: P300566

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300566

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300721

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: P300621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300064

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

Reference Method: SM 2320 B-97
Batch ID: P300588

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778438	Kjeldahl Nitrogen	95.3	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778578	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778468	Total-P	91.7	94.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778471	O-Phosphate-P	95.7	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778466	Fluoride	99.6	100	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P300360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778143	Organic Carbon	95.8	94.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778576	Turbidity	5.13	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778468	Ammonia-N	0.125	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778438	Kjeldahl Nitrogen	3.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778578	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778468	Total-P	3.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778471	O-Phosphate-P	3.09	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778466	Total Alkalinity	0.134	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P300291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778451	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778466	Fluoride	0.470	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778143	Organic Carbon	0.945	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: A68113

Included Lab Sample IDs: 1778580, 1778581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.4	96.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68115

Included Lab Sample IDs: 1778576, 1778577

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

Reference Method: SM 5310 B-00

Run ID: A68221

Included Lab Sample IDs: 1778578, 1778579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68281

Included Lab Sample IDs: 1778578, 1778579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68284

Included Lab Sample IDs: 1778578, 1778579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68295

Included Lab Sample IDs: 1778576, 1778577

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

Reference Method: SM 4500 F-C-97

Run ID: A68295

Included Lab Sample IDs: 1778576, 1778577

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68367
Included Lab Sample IDs: 1778578, 1778579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68380
Included Lab Sample IDs: 1778578, 1778579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	99.4	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				5.13	
EPA 350.1 Rev. 2.0	Ammonia-N	101				0.125
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	95.3 99.8			3.73
EPA 353.2 Rev. 2.0	NO2NO3-N	100	104 103			0.484
EPA 365.1 Rev. 2.0	Total-P	98.4	91.7 94.7			3.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	95.7 98.7			3.09
SM 2320 B-97	Total Alkalinity	103			0.134	
SM 2540 D-97	TSS				7.41	
SM 4500 F-C-97	Fluoride	102	99.6 100			0.470
SM 5310 B-00	Organic Carbon	105	95.8 94.8			0.945

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1778576, 1778577
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1778578, 1778579
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1778578, 1778579
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1778578, 1778579
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1778578, 1778579
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1778580, 1778581
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1778576, 1778577
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1778576, 1778577
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1778576, 1778577
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1778578, 1778579

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	03/09/2016			03/09/2016 14:47	Sima Feizi	1778576, 1778577
EPA 350.1 Rev. 2.0	03/09/2016			03/17/2016	Diana M. Turner	1778578, 1778579
EPA 351.2 Rev. 2.0	03/09/2016	03/21/2016	Sofia Elnemr	03/22/2016	Christopher Armour	1778578, 1778579
EPA 353.2 Rev. 2.0	03/09/2016			03/17/2016	Peter D. Kaus	1778578, 1778579
EPA 365.1 Rev. 2.0	03/09/2016	03/18/2016	Christopher Armour	03/21/2016	Lipi Saha	1778578, 1778579
EPA 365.1 Rev. 2.0 dissolved	03/09/2016			03/09/2016 14:05	Ping Hua	1778580, 1778581
SM 2320 B-97	03/09/2016			03/17/2016	Dale L. Simmons	1778576, 1778577
SM 2540 D-97	03/09/2016			03/09/2016	Yijie Li	1778576, 1778577
SM 4500 F-C-97	03/09/2016			03/17/2016	Dale L. Simmons	1778576, 1778577
SM 5310 B-00	03/09/2016			03/15/2016	Sofia Elnemr	1778578, 1778579