Chemical Analysis Report

SO-DIST-2016-03-08-03

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

Event Description: **WBID 2056A**
Request ID: **RQ-2016-02-29-30**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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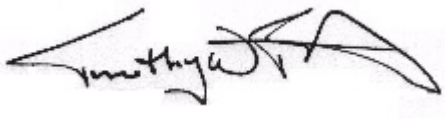
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 28-MAR-2016 13:47



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 groups are included in this report: Metals and 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: Charlotte Harbor **Collection Date/Time: 03/07/2016 06:46**

Field ID: CHV006 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777846	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P299953	
	SM 2320 B-97	Total Alkalinity	90		mg CaCO3/L	P300588	
	SM 2540 D-97	TSS	3	U	mg/L	P300133	
	SM 4500 F-C-97	Fluoride	0.75		mg F/L	P300591	
1777847	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P300471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P300415	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P300333	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P300447	MS
	SM 5310 B-00	Organic Carbon	11		mg C/L	P300237	
1777848	EPA 200.7 Rev. 4.4	Iron	140		ug/L	P300077	
	EPA 200.8 Rev. 5.4	Arsenic	1.42		ug/L	P300077	
		Cadmium	0.060	U	ug/L	P300077	
		Chromium	0.32	I	ug/L	P300077	
		Copper	1.1	I	ug/L	P300077	
		Lead	0.15	U	ug/L	P300077	
		Nickel	0.48	I	ug/L	P300077	
		Silver	0.015	U	ug/L	P300077	
		Zinc	6.6	I	ug/L	P300077	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299953

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300077

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300077

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L
Zinc	1.0	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300471

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300415

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300333

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300447

Component	Result	Code	Units
Total-P	0.002	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: P300133

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: P300237

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300077

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	95.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	96.3		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	97.7		P	85 - 115
Copper	91.3		P	85 - 115
Lead	91.1		P	85 - 115
Nickel	92.9		P	85 - 115
Silver	98.6		P	85 - 115
Zinc	95.0		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300471

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	90.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300333

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300447

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.1		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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P300237

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776742	Iron	98.2	96.4	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776742	Arsenic	106	103	P/P	70 - 130
1776742	Cadmium	103	102	P/P	70 - 130
1776742	Chromium	90.4	88.4	P/P	70 - 130
1776742	Copper	93.2	91.1	P/P	70 - 130
1776742	Lead	95.6	94.1	P/P	70 - 130
1776742	Nickel	94.9	92.6	P/P	70 - 130
1776742	Silver	95.2	93.1	P/P	70 - 130
1776742	Zinc	100	98.1	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778023	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777797	Kjeldahl Nitrogen	95.4	93.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778021	NO2NO3-N	96.2	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777793	Total-P	87.0	92.8	F/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

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: P300237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776887	Organic Carbon	90.3	90.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777728	Turbidity	11.5	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776742	Iron	1.76	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776742	Arsenic	2.93	Spike	P	0 - 20
1776742	Cadmium	0.897	Spike	P	0 - 20
1776742	Chromium	2.11	Spike	P	0 - 20
1776742	Copper	2.15	Spike	P	0 - 20
1776742	Lead	1.60	Spike	P	0 - 20
1776742	Nickel	2.47	Spike	P	0 - 20
1776742	Silver	2.21	Spike	P	0 - 20
1776742	Zinc	1.95	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778023	Ammonia-N	1.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777797	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778021	NO2NO3-N	2.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777793	Total-P	6.23	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 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: P300237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776887	Organic Carbon	0.137	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 180.1 Rev. 2.0
Run ID: A68081
Included Lab Sample IDs: 1777846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A68174
Included Lab Sample IDs: 1777847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	96.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A68181
Included Lab Sample IDs: 1777848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	93.6	93.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A68189
Included Lab Sample IDs: 1777848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.3	97.6	P/P	90 - 110
Cadmium	104	99.5	P/P	90 - 110
Chromium	99.0	93.9	P/P	90 - 110
Copper	95.1	94.9	P/P	90 - 110
Lead	97.4	95.3	P/P	90 - 110
Nickel	94.2	95.2	P/P	90 - 110
Silver	98.6	95.3	P/P	90 - 110
Zinc	96.6	95.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68204
Included Lab Sample IDs: 1777847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68260
Included Lab Sample IDs: 1777847

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

Reference Method: SM 2320 B-97
Run ID: A68295
Included Lab Sample IDs: 1777846

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: A68295
Included Lab Sample IDs: 1777846

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: A68298
Included Lab Sample IDs: 1777847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.4	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68325
Included Lab Sample IDs: 1777847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	95.3	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					11.5	
EPA 200.7 Rev. 4.4	Iron	95.8	98.2	96.4			1.76
EPA 200.8 Rev. 5.4	Arsenic	96.3	106	103			2.93
	Cadmium	101	103	102			0.897
	Chromium	97.7	90.4	88.4			2.11
	Copper	91.3	93.2	91.1			2.15
	Lead	91.1	95.6	94.1			1.60
	Nickel	92.9	94.9	92.6			2.47
	Silver	98.6	95.2	93.1			2.21
	Zinc	95.0	100	98.1			1.95
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	102	104			1.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	90.5	95.4	93.4			1.64
EPA 353.2 Rev. 2.0	NO2NO3-N	101	96.2	94.2			2.04
EPA 365.1 Rev. 2.0	Total-P	93.1	87.0	92.8			6.23
SM 2320 B-97	Total Alkalinity	103				0.134	
SM 4500 F-C-97	Fluoride	102	99.6	100			0.470
SM 5310 B-00	Organic Carbon	105	90.3	90.2			0.137

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1777846
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1777848
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1777848
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1777847
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1777847
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1777847

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1777847
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1777846
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1777846
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1777846
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1777847

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	03/08/2016			03/08/2016 15:41	Sima Feizi	1777846
EPA 200.7 Rev. 4.4	03/08/2016	03/09/2016	Elliott D. Healy	03/11/2016	Joshua Ayres	1777848
EPA 200.8 Rev. 5.4	03/08/2016	03/09/2016	Elliott D. Healy	03/11/2016	Charles J. Peterson	1777848
EPA 350.1 Rev. 2.0	03/08/2016			03/16/2016	Diana M. Turner	1777847
EPA 351.2 Rev. 2.0	03/08/2016	03/16/2016	Sofia Elnemr	03/18/2016	Christopher Armour	1777847
EPA 353.2 Rev. 2.0	03/08/2016			03/14/2016	Diana M. Turner	1777847
EPA 365.1 Rev. 2.0	03/08/2016	03/16/2016	Christopher Armour	03/17/2016	Lipi Saha	1777847
SM 2320 B-97	03/08/2016			03/17/2016	Dale L. Simmons	1777846
SM 2540 D-97	03/08/2016			03/08/2016	Yijie Li	1777846
SM 4500 F-C-97	03/08/2016			03/17/2016	Dale L. Simmons	1777846
SM 5310 B-00	03/08/2016			03/11/2016	Sofia Elnemr	1777847