Chemical Analysis Report

NE-DIST-2016-04-07-02

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

Event Description: **Suw. SCI-Millcr**
Request ID: **RQ-2016-04-04-29**
Customer: **NE-DIST**
Project ID: **SMP**

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8800 Baymeadows Way West
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 04-MAY-2016 11:24

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: Mill Cr. @ Old Bellamy Rd **Collection Date/Time: 04/06/2016 12:10**

Field ID: 21030126 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787776	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P301861	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P302306	
		Sulfate	4.6		mg SO4/L	P302312	
	SM 2120 B	Color (true)	210		PCU	P302070	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P302192	
	SM 2540 C-97	TDS	85		mg/L	P302610	
	SM 2540 D-97	TSS	9	I	mg/L	P302330	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P302195	
1787777	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P302558	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P302581	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P302094	
	EPA 365.1 Rev. 2.0	Total-P	0.91		mg P/L	P302785	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P302341	
1787778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.60		mg P/L	P301835	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P301861

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302306

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302312

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302558

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302581

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: P302094

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302785

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301835

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

Reference Method: SM 2120 B
Batch ID: P302070

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302192

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

Reference Method: SM 2540 C-97
Batch ID: P302610

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302330

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302195

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P302341

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: P302306

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302558

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302581

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302094

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302785

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P302192

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

Reference Method: SM 4500 F-C-97
Batch ID: P302195

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P302341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787697	Chloride	95.9		P	90 - 110
1787721	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787697	Sulfate	94.9		P	90 - 110
1787721	Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787718	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302581

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787726	Kjeldahl Nitrogen	94.7	94.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302094

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787704	NO2NO3-N	96.8	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1789166	Total-P	105	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787728	O-Phosphate-P	96.4	97.6	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P302195

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787722	Fluoride	95.5	95.5	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P301861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787697	Turbidity	2.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787721	Chloride	0.542	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787721	Sulfate	0.767	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787718	Ammonia-N	0.495	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787726	Kjeldahl Nitrogen	0.493	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787704	NO2NO3-N	0.948	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789166	Total-P	4.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787728	O-Phosphate-P	1.18	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787696	Color (true)	0.362	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P302192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787722	Total Alkalinity	0.0528	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787950	TDS	1.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787722	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P302341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787700	Organic Carbon	0.999	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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68729
Included Lab Sample IDs: 1787778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	97.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68738
Included Lab Sample IDs: 1787776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68804
Included Lab Sample IDs: 1787776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	95.2	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68814
Included Lab Sample IDs: 1787777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	97.0	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A68821
Included Lab Sample IDs: 1787776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	106	P/P	85 - 115

Reference Method: SM 2320 B-97
Run ID: A68859
Included Lab Sample IDs: 1787776

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: A68859
Included Lab Sample IDs: 1787776

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

Reference Method: SM 5310 B-00
Run ID: A68901
Included Lab Sample IDs: 1787777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68974
Included Lab Sample IDs: 1787777

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: A69049
Included Lab Sample IDs: 1787777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69053
Included Lab Sample IDs: 1787777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	104	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					2.64	
EPA 300.0 Rev. 2.1	Chloride	104	98.3	95.9		0.542	
	Sulfate	97.8	95.9	94.9		0.767	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	102	103			0.495
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.7	94.2			0.493
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	96.8	95.8			0.948
EPA 365.1 Rev. 2.0	Total-P	105	105	100			4.36
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	96.4	97.6			1.18
SM 2120 B	Color (true)					0.362	
SM 2320 B-97	Total Alkalinity	101				0.0528	
SM 2540 C-97	TDS					1.64	
SM 4500 F-C-97	Fluoride	98.7	95.5	95.5			0.0
SM 5310 B-00	Organic Carbon	96.8					0.999

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1787776
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1787776
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1787776
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1787777

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1787777
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1787777
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1787777
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1787778
SM 2120 B / E31780	True Color measured at 450 nm	1787776
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1787776
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1787776
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1787776
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1787776
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1787777

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	04/07/2016			04/07/2016 17:11	Sima Feizi	1787776
EPA 300.0 Rev. 2.1	04/07/2016			04/13/2016	Ping Hua	1787776
EPA 350.1 Rev. 2.0	04/07/2016			04/19/2016	Diana M. Turner	1787777
EPA 351.2 Rev. 2.0	04/07/2016	04/20/2016	Sofia Elnemr	04/21/2016	Christopher Armour	1787777
EPA 353.2 Rev. 2.0	04/07/2016			04/12/2016	Peter D. Kaus	1787777
EPA 365.1 Rev. 2.0	04/07/2016	04/22/2016	Lipi Saha	04/22/2016	Lipi Saha	1787777
EPA 365.1 Rev. 2.0 dissolved	04/07/2016			04/07/2016 14:44	Ping Hua	1787778
SM 2120 B	04/07/2016			04/07/2016 15:38	Blanca Fach	1787776
SM 2320 B-97	04/07/2016			04/13/2016	Dale L. Simmons	1787776
SM 2540 C-97	04/07/2016			04/11/2016	Sima Feizi	1787776
SM 2540 D-97	04/07/2016			04/11/2016	Sima Feizi	1787776
SM 4500 F-C-97	04/07/2016			04/13/2016	Dale L. Simmons	1787776
SM 5310 B-00	04/07/2016			04/14/2016	Sofia Elnemr	1787777