Chemical Analysis Report

NE-DIST-2016-12-08-01

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

Event Description: **Gville SCIs**
Request ID: **RQ-2016-12-05-18**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 30-DEC-2016 14:04

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: TURKEY CR @ NW 59TH **Collection Date/Time: 12/07/2016 11:05**

Field ID: G1NE0018 12072016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856096	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P316442	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P316975	
		Sulfate	25		mg SO4/L	P316978	
	SM 2120 B	Color (true)	110		PCU	P316450	
	SM 2320 B-97	Total Alkalinity	73		mg CaCO3/L	P316895	
	SM 2540 C-97	TDS	132		mg/L	P317006	
	SM 2540 D-97	TSS	3	I	mg/L	P317029	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P316899	
1856097	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P316785	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P316741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316940	
	EPA 365.1 Rev. 2.0	Total-P	0.84		mg P/L	P316589	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P316489	
1856098	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.58		mg P/L	P316520	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316442

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316975

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316785

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316741

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: P316940

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316589

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316520

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

Reference Method: SM 2120 B
Batch ID: P316450

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316895

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

Reference Method: SM 2540 C-97
Batch ID: P317006

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317029

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316899

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316489

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: P316975

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316785

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: P316741

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316589

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316520

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

Reference Method: SM 2320 B-97
Batch ID: P316895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P316489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855959	Chloride	102		P	90 - 110
1856201	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855959	Sulfate	93.9		P	90 - 110
1856201	Sulfate	94.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855961	Ammonia-N	101	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856069	Kjeldahl Nitrogen	98.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856067	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316589

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856066	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855908	O-Phosphate-P	98.4	98.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P316899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855890	Fluoride	99.2	99.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855607	Organic Carbon	93.0	95.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855957	Turbidity	6.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856201	Chloride	0.447	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856201	Sulfate	0.219	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855961	Ammonia-N	2.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856069	Kjeldahl Nitrogen	1.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316940

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

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856067	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856066	Total-P	1.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855908	O-Phosphate-P	0.382	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856136	Color (true)	0.0815	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855890	Total Alkalinity	0.0334	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P317006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856062	TDS	0.204	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P316899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855890	Fluoride	0.500	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855607	Organic Carbon	1.95	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 180.1 Rev. 2.0
Run ID: A73258
Included Lab Sample IDs: 1856096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A73259
Included Lab Sample IDs: 1856096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A73268
Included Lab Sample IDs: 1856097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.5	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73279
Included Lab Sample IDs: 1856098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73342
Included Lab Sample IDs: 1856097

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73369
Included Lab Sample IDs: 1856097

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73371
Included Lab Sample IDs: 1856097

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73375
Included Lab Sample IDs: 1856096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	103	P/P	90 - 110
Sulfate	102	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73405
Included Lab Sample IDs: 1856097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A73415
Included Lab Sample IDs: 1856096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73415
Included Lab Sample IDs: 1856096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	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					6.64	
EPA 300.0 Rev. 2.1	Chloride	104	102	102		0.447	
	Sulfate	98.6	94.4	93.9		0.219	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	105			2.46
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	98.6	101			1.70
EPA 353.2 Rev. 2.0	NO2NO3-N	106	103	102			0.995
EPA 365.1 Rev. 2.0	Total-P	103	103	101			1.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.4	98.9			0.382
SM 2120 B	Color (true)					0.0815	
SM 2320 B-97	Total Alkalinity	98.4				0.0334	
SM 2540 C-97	TDS					0.204	
SM 4500 F-C-97	Fluoride	97.9	99.2	99.9			0.500
SM 5310 B-00	Organic Carbon	97.8	93.0	95.2			1.95

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1856096
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1856096
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1856096
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1856097
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1856097
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1856097
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1856097
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1856098
SM 2120 B / E31780	True Color measured at 450 nm	1856096
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1856096
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1856096
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1856096
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1856096
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1856097

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	12/08/2016			12/08/2016 16:30	Sima Feizi	1856096
EPA 300.0 Rev. 2.1	12/08/2016			12/16/2016	Ping Hua	1856096
EPA 350.1 Rev. 2.0	12/08/2016			12/13/2016	Sofia Elnemr	1856097
EPA 351.2 Rev. 2.0	12/08/2016	12/14/2016	Adrian Shelby	12/15/2016	Joseph Suarez	1856097
EPA 353.2 Rev. 2.0	12/08/2016			12/14/2016	Beverly Y. Sanders	1856097
EPA 365.1 Rev. 2.0	12/08/2016	12/12/2016	Vijayalakshmi Reddy	12/13/2016	Lipi Saha	1856097
EPA 365.1 Rev. 2.0 dissolved	12/08/2016			12/08/2016 16:05	Julia Storbeck	1856098
SM 2120 B	12/08/2016			12/08/2016 16:07	Jared I. Manley	1856096
SM 2320 B-97	12/08/2016			12/15/2016	Dale L. Simmons	1856096
SM 2540 C-97	12/08/2016			12/12/2016	Sima Feizi	1856096
SM 2540 D-97	12/08/2016			12/12/2016	Sima Feizi	1856096
SM 4500 F-C-97	12/08/2016			12/15/2016	Dale L. Simmons	1856096
SM 5310 B-00	12/08/2016			12/08/2016	Julie Michelle Frank	1856097