Chemical Analysis Report

CEN-DIST-2016-01-08-01

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

Event Description: **SCIs**
Request ID: **RQ-2016-01-04-28**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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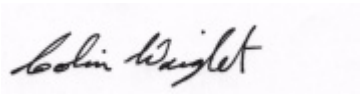
Certified by: Colin Wright, Environmental Administrator

Date Certified: 22-JAN-2016 13:08



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: Shady Brook @ 2400m us of US301 **Collection Date/Time: 01/07/2016 13:05**

Field ID: G1CE0021_01072016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1761769	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P296848	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P297160	
		Sulfate	3.4	A	mg SO4/L	P297163	
	SM 2120 B	Color (true)	110		PCU	P296853	
	SM 2540 C-97	TDS	202		mg/L	P297223	
	SM 2540 D-97	TSS	4	I	mg/L	P297228	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P297059	
1761770	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P297098	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P296981	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P296964	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P297002	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P297022	
1761771	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P296842	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: 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: P296848

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297160

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297163

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297098

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P296981

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: P296964

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297002

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P296842

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

Reference Method: SM 2120 B
Batch ID: P296853

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 C-97
Batch ID: P297223

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P297228

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P297059

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P297022

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: P297160

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297160

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297098

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P296981

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P296964

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297002

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P296842

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

Reference Method: SM 4500 F-C-97
Batch ID: P297059

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

Reference Method: SM 5310 B-00
Batch ID: P297022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761769	Chloride	98.6		P	90 - 110
1761973	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761769	Sulfate	96.3		P	90 - 110
1761973	Sulfate	91.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761706	Ammonia-N	99.9	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P296981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761735	Kjeldahl Nitrogen	98.0	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P296964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761783	NO2NO3-N	91.8	91.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P296842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761652	O-Phosphate-P	90.5	92.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P297059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1762150	Fluoride	104	103	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P297022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1761594	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P296848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761731	Turbidity	2.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761769	Chloride	0.0782	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761769	Sulfate	11.8	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761706	Ammonia-N	1.95	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P296981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761735	Kjeldahl Nitrogen	3.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P296964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761783	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761734	Total-P	0.751	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P296842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761652	O-Phosphate-P	1.61	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P296853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761731	Color (true)	1.38	Sample	P	0 - 20

Reference Method: SM 2540 C-97
Batch ID: P297223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761620	TDS	7.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P297059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1762150	Fluoride	0.984	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P297022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1761594	Organic Carbon	0.729	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: A67003
Included Lab Sample IDs: 1761771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	96.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67004
Included Lab Sample IDs: 1761769

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

Reference Method: SM 2120 B
Run ID: A67006
Included Lab Sample IDs: 1761769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 115

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A67054
Included Lab Sample IDs: 1761770

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A67073
Included Lab Sample IDs: 1761770

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

Reference Method: SM 4500 F-C-97
Run ID: A67081
Included Lab Sample IDs: 1761769

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67088
Included Lab Sample IDs: 1761770

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A67091
Included Lab Sample IDs: 1761770

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A67095
Included Lab Sample IDs: 1761770

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A67117
Included Lab Sample IDs: 1761769

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	98.1	100	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					2.79	
EPA 300.0 Rev. 2.1	Chloride	104	98.6	100		0.0782	
	Sulfate	98.7	96.3	91.9		11.8	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.9	103			1.95
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	98.0	102			3.39
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	91.8	91.8			0.0
EPA 365.1 Rev. 2.0	Total-P	101					0.751
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	90.5	92.1			1.61
SM 2120 B	Color (true)					1.38	
SM 2540 C-97	TDS					7.00	
SM 4500 F-C-97	Fluoride	95.9	104	103			0.984
SM 5310 B-00	Organic Carbon	102	103	103			0.729

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1761769
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1761769
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1761769
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1761770
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1761770
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1761770
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1761770
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1761771
SM 2120 B / E31780	True Color measured at 450 nm	1761769
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1761769
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1761769
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1761769
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1761770

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	01/08/2016			01/08/2016 15:09	Sima Feizi	1761769
EPA 300.0 Rev. 2.1	01/08/2016			01/15/2016	Ping Hua	1761769
EPA 350.1 Rev. 2.0	01/08/2016			01/14/2016	Diana M. Turner	1761770
EPA 351.2 Rev. 2.0	01/08/2016	01/13/2016	Christopher Armour	01/14/2016	Bryan A. Werth	1761770
EPA 353.2 Rev. 2.0	01/08/2016			01/12/2016	Peter D. Kaus	1761770
EPA 365.1 Rev. 2.0	01/08/2016	01/13/2016	Christopher Armour	01/14/2016	Lipi Saha	1761770
EPA 365.1 Rev. 2.0 dissolved	01/08/2016			01/08/2016 13:52	Julia Storbeck	1761771
SM 2120 B	01/08/2016			01/08/2016 14:36	Rochelle Y Jackson	1761769
SM 2540 C-97	01/08/2016			01/12/2016	Yijie Li	1761769
SM 2540 D-97	01/08/2016			01/12/2016	Yijie Li	1761769
SM 4500 F-C-97	01/08/2016			01/13/2016	Dale L. Simmons	1761769
SM 5310 B-00	01/08/2016			01/13/2016	Sofia Elnemr	1761770