Chemical Analysis Report

CEN-DIST-2016-05-06-01

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

Event Description: **Hart Brach+D&B**
Request ID: **RQ-2016-05-02-80**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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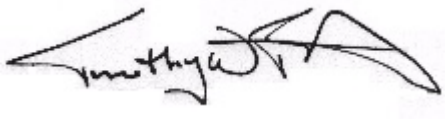
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 01-JUN-2016 17:03



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: Groover Branch @ Airport Rd Bridge **Collection Date/Time: 05/05/2016 10:20**

Field ID: G5CE0040 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796744	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P303724	
	EPA 300.0 Rev. 2.1	Chloride	66		mg Cl/L	P304372	
		Sulfate	12		mg SO4/L	P304375	
	SM 2120 B	Color (true)	92		PCU	P303709	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	288	A	mg/L	P304438	
	SM 2540 D-97	TSS	5	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P304483	
1796745	EPA 350.1 Rev. 2.0	Ammonia-N	0.20		mg N/L	P304320	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P304684	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P304705	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P304875	
1796746	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P303718	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: 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: P303724

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

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: P304269

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

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

Reference Method: SM 2120 B
Batch ID: P303709

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304481

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

Reference Method: SM 2540 C-97
Batch ID: P304438

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304394

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304875

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: P304372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

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: P304684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

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

Reference Method: SM 2320 B-97
Batch ID: P304481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P304875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Chloride	95.1		P	90 - 110
1796789	Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Sulfate	94.1		P	90 - 110
1796789	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797503	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796591	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797005	Fluoride	96.4	96.4	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P304875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796584	Organic Carbon	94.5	95.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796580	Turbidity	0.563	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Chloride	0.310	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Sulfate	0.984	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797503	Ammonia-N	0.936	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796828	Kjeldahl Nitrogen	2.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	NO2NO3-N	0.613	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	Total-P	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796591	O-Phosphate-P	1.28	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796488	Color (true)	2.38	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Total Alkalinity	0.293	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796744	TDS	1.73	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796584	Organic Carbon	0.820	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: SM 2120 B
Run ID: A69317
Included Lab Sample IDs: 1796744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	99.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69320
Included Lab Sample IDs: 1796746

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69321
Included Lab Sample IDs: 1796744

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69423
Included Lab Sample IDs: 1796744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	99.4	P/P	90 - 110
Sulfate	97.4	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69466
Included Lab Sample IDs: 1796745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69475
Included Lab Sample IDs: 1796745

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: A69535
Included Lab Sample IDs: 1796744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69535
Included Lab Sample IDs: 1796744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69611
Included Lab Sample IDs: 1796745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	91.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69651
Included Lab Sample IDs: 1796745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.3	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69662
Included Lab Sample IDs: 1796745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	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					0.563	
EPA 300.0 Rev. 2.1	Chloride	97.6	95.1	97.3		0.310	
	Sulfate	96.3	94.1	96.3		0.984	
EPA 350.1 Rev. 2.0	Ammonia-N	100	100	101			0.936
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1					2.27
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	103			0.613
EPA 365.1 Rev. 2.0	Total-P	107	107	108			1.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	101	102			1.28
SM 2120 B	Color (true)					2.38	
SM 2320 B-97	Total Alkalinity	102				0.293	
SM 2540 C-97	TDS					1.73	
SM 4500 F-C-97	Fluoride	97.3	96.4	96.4			0.0
SM 5310 B-00	Organic Carbon	96.9	94.5	95.4			0.820

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796744
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796744
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796744
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796745

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796745
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796745
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796745
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796746
SM 2120 B / E31780	True Color measured at 450 nm	1796744
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1796744
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796744
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796744
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796744
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796745

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	05/06/2016			05/06/2016 13:16	Sima Feizi	1796744
EPA 300.0 Rev. 2.1	05/06/2016			05/14/2016	Elisa J Lutz	1796744
EPA 350.1 Rev. 2.0	05/06/2016			05/13/2016	Diana M. Turner	1796745
EPA 351.2 Rev. 2.0	05/06/2016	05/19/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796745
EPA 353.2 Rev. 2.0	05/06/2016			05/13/2016	Peter D. Kaus	1796745
EPA 365.1 Rev. 2.0	05/06/2016	05/20/2016	Lipi Saha	05/24/2016	Lipi Saha	1796745
EPA 365.1 Rev. 2.0 dissolved	05/06/2016			05/06/2016 14:15	Julia Storbeck	1796746
SM 2120 B	05/06/2016			05/06/2016 13:30	Rochelle Y Jackson	1796744
SM 2320 B-97	05/06/2016			05/17/2016	Dale L. Simmons	1796744
SM 2540 C-97	05/06/2016			05/11/2016	Yijie Li	1796744
SM 2540 D-97	05/06/2016			05/11/2016	Yijie Li	1796744
SM 4500 F-C-97	05/06/2016			05/17/2016	Dale L. Simmons	1796744
SM 5310 B-00	05/06/2016			05/24/2016	Diana M. Turner	1796745