Chemical Analysis Report

NW-DIST-2016-07-22-02

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

Event Description: **WBID 49 49G 94 210**
Request ID: **RQ-2016-07-18-18**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government St
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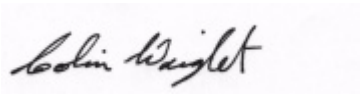
Certified by: Colin Wright, Environmental Administrator

Date Certified: 16-AUG-2016 12:26



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: CHOCTAWHATCHEE RIVER AT HWY 90 **Collection Date/Time: 07/21/2016 12:15**

Field ID: G3NW0052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1818509	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P308499	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P309263	
		Sulfate	2.2		mg SO4/L	P309266	
	SM 2120 B	Color (true)	21	A	PCU	P308490	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P308881	
	SM 2540 C-97	TDS	48		mg/L	P309039	
	SM 2540 D-97	TSS	13		mg/L	P309025	
	SM 4500 F-C-97	Fluoride	0.054	I	mg F/L	P308884	
1818510	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P308498	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P309479	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P309121	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P308695	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P309107	
1818511	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P308484	

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: P308499

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309263

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309266

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308498

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309479

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: P309121

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308695

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308484

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

Reference Method: SM 2120 B
Batch ID: P308490

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P308881

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

Reference Method: SM 2540 C-97
Batch ID: P309039

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309025

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P309107

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: P309263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308498

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: P309479

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308695

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308484

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

Reference Method: SM 2320 B-97
Batch ID: P308881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P309107

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: P309263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818562	Chloride	97.8		P	90 - 110
1818618	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818562	Sulfate	94.3		P	90 - 110
1818618	Sulfate	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818510	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818546	Kjeldahl Nitrogen	102	88.6	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818426	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818428	Total-P	100	93.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818507	O-Phosphate-P	97.7	99.2	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818863	Fluoride	98.1	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P309107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818479	Organic Carbon	95.9	96.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P308499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818478	Turbidity	15.1	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818562	Chloride	0.0540	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818562	Sulfate	0.922	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818510	Ammonia-N	2.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818546	Kjeldahl Nitrogen	8.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309121

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: P309121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818426	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P308695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818428	Total-P	6.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818507	O-Phosphate-P	1.27	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818509	Color (true)	6.96	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P308881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818863	Total Alkalinity	0.0457	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P309039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818516	TDS	3.50	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P308884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818863	Fluoride	0.482	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P309107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818479	Organic Carbon	0.222	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 365.1 Rev. 2.0 dissolved
Run ID: A70710
Included Lab Sample IDs: 1818511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70713
Included Lab Sample IDs: 1818510

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

Reference Method: SM 2120 B
Run ID: A70714
Included Lab Sample IDs: 1818509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.4	94.1	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70715
Included Lab Sample IDs: 1818509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A70836
Included Lab Sample IDs: 1818509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70836
Included Lab Sample IDs: 1818509

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70885
Included Lab Sample IDs: 1818509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	101	P/P	90 - 110
Sulfate	96.2	98.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A70922
Included Lab Sample IDs: 1818510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70927
Included Lab Sample IDs: 1818510

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70991
Included Lab Sample IDs: 1818510

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A71086
Included Lab Sample IDs: 1818510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	92.9	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					15.1	
EPA 300.0 Rev. 2.1	Chloride	98.3	97.8	98.0		0.0540	
	Sulfate	95.0	94.3	94.5		0.922	
EPA 350.1 Rev. 2.0	Ammonia-N	101	100	103			2.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	102	88.6			8.15
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103				0.475
EPA 365.1 Rev. 2.0	Total-P	102	100	93.8			6.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	97.7	99.2			1.27
SM 2120 B	Color (true)					6.96	
SM 2320 B-97	Total Alkalinity	104				0.0457	
SM 2540 C-97	TDS					3.50	
SM 4500 F-C-97	Fluoride	97.8	98.1	97.6			0.482
SM 5310 B-00	Organic Carbon	102	95.9	96.2			0.222

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1818509
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1818509
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1818509
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1818510
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1818510
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1818510
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1818510
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1818511
SM 2120 B / E31780	True Color measured at 450 nm	1818509
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1818509
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1818509
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1818509
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1818509
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1818510

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	07/22/2016			07/22/2016 14:13	Rochelle Y Jackson	1818509
EPA 300.0 Rev. 2.1	07/22/2016			08/04/2016	Ping Hua	1818509
EPA 350.1 Rev. 2.0	07/22/2016			07/22/2016	Julie Michelle Frank	1818510
EPA 351.2 Rev. 2.0	07/22/2016	08/10/2016	Sofia Elnemr	08/11/2016	Christopher Armour	1818510
EPA 353.2 Rev. 2.0	07/22/2016			08/03/2016	Virginia P. Brown	1818510
EPA 365.1 Rev. 2.0	07/22/2016	07/27/2016	Vijayalakshmi Reddy	08/04/2016	Lipi Saha	1818510
EPA 365.1 Rev. 2.0 dissolved	07/22/2016			07/22/2016 14:14	Julia Storbeck	1818511
SM 2120 B	07/22/2016			07/22/2016 15:09	Rochelle Y Jackson	1818509
SM 2320 B-97	07/22/2016			07/29/2016	Dale L. Simmons	1818509
SM 2540 C-97	07/22/2016			07/27/2016	Yijie Li	1818509
SM 2540 D-97	07/22/2016			07/27/2016	Yijie Li	1818509
SM 4500 F-C-97	07/22/2016			07/29/2016	Dale L. Simmons	1818509
SM 5310 B-00	07/22/2016			08/02/2016	Sofia Elnemr	1818510