

Chemical Analysis Report

NW-DIST-2016-03-01-03

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

Event Description: **WBID 371 557 567 570 646**

Request ID: **RQ-2016-02-15-13**

Customer: **NW-DIST**

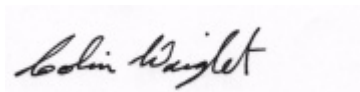
Project ID: **SMP**

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 21-MAR-2016 12:59

A handwritten signature in black ink, appearing to read "Colin Wright", is positioned on a light gray rectangular background.

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: Magnolia Creek @ Owls Head Rd.

Collection Date/Time: 02/29/2016 11:50

Field ID: G3NW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1775647	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P299557	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P299736	
		Sulfate	2.3		mg SO4/L	P299739	
	SM 2120 B	Color (true)	33		PCU	P299536	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300009	
	SM 2540 C-97	TDS	20	I	mg/L	P299888	
	SM 2540 D-97	TSS	3	I	mg/L	P299791	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300013	
1775648	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P300074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P299863	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P299799	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P299927	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P299931	
1775649	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299518	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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: P299557

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299736

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299739

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300074

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P299863

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: P299799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299518

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

Reference Method: SM 2120 B
Batch ID: P299536

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300009

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

Reference Method: SM 2540 C-97
Batch ID: P299888

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299791

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299931

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: P299736

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299739

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300074

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299863

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

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: P299927

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299518

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

Reference Method: SM 2320 B-97
Batch ID: P300009

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

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	94 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P299931

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	88.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775865	Sulfate	100		P	90 - 110
1775866	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775811	Ammonia-N	98.7	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775635	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775635	Total-P	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299518

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775649	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775515	Fluoride	93.8	95.5	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1775809	Organic Carbon	85.8	87.2	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775647	Turbidity	4.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775865	Chloride	0.00811	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775865	Sulfate	0.137	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775811	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775587	Kjeldahl Nitrogen	0.0265	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775635	NO2NO3-N	0.385	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775635	Total-P	0.964	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775649	O-Phosphate-P	0.981	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P299536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775634	Color (true)	4.25	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775515	Total Alkalinity	3.58	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775584	TDS	3.09	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775515	Fluoride	1.52	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1775809	Organic Carbon	1.51	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: A67918
Included Lab Sample IDs: 1775649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A67922
Included Lab Sample IDs: 1775647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.4	P/P	90 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67932

Included Lab Sample IDs: 1775647

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67933

Included Lab Sample IDs: 1775647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Sulfate	100	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68011

Included Lab Sample IDs: 1775648

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

Reference Method: SM 5310 B-00

Run ID: A68077

Included Lab Sample IDs: 1775648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	94.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68093

Included Lab Sample IDs: 1775647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68094

Included Lab Sample IDs: 1775647

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68112

Included Lab Sample IDs: 1775648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68133

Included Lab Sample IDs: 1775648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68247

Included Lab Sample IDs: 1775648

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	106	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.78	
EPA 300.0 Rev. 2.1	Chloride	103			0.0081	
	Sulfate	101	100 101		0.137	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	98.7 99.8			1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103				0.0265
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103 102			0.385
EPA 365.1 Rev. 2.0	Total-P	97.0	99.6 101			0.964
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101 102			0.981
SM 2120 B	Color (true)				4.25	
SM 2320 B-97	Total Alkalinity	102			3.58	
SM 2540 C-97	TDS				3.09	
SM 4500 F-C-97	Fluoride	96.9	93.8 95.5			1.52
SM 5310 B-00	Organic Carbon	88.6	85.8 87.2			1.51

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1775647
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1775647
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1775647
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1775648
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1775648
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1775648
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1775648
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1775649
SM 2120 B / E31780	True Color measured at 450 nm	1775647
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1775647
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1775647
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1775647
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1775647
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1775648

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	03/01/2016			03/01/2016 15:06	Sima Feizi	1775647
EPA 300.0 Rev. 2.1	03/01/2016			03/04/2016	Ping Hua	1775647
EPA 350.1 Rev. 2.0	03/01/2016			03/09/2016	Diana M. Turner	1775648
EPA 351.2 Rev. 2.0	03/01/2016	03/07/2016	Sofia Elnemr	03/08/2016	Rochelle Y Jackson	1775648
EPA 353.2 Rev. 2.0	03/01/2016			03/04/2016	Virginia P. Brown	1775648
EPA 365.1 Rev. 2.0	03/01/2016	03/08/2016	Lipi Saha	03/09/2016	Lipi Saha	1775648
EPA 365.1 Rev. 2.0 dissolved	03/01/2016			03/01/2016 14:03	Julia Storbeck	1775649
SM 2120 B	03/01/2016			03/01/2016 17:01	Rochelle Y Jackson	1775647
SM 2320 B-97	03/01/2016			03/08/2016	Dale L. Simmons	1775647
SM 2540 C-97	03/01/2016			03/02/2016	Yijie Li	1775647
SM 2540 D-97	03/01/2016			03/02/2016	Yijie Li	1775647
SM 4500 F-C-97	03/01/2016			03/07/2016	Dale L. Simmons	1775647
SM 5310 B-00	03/01/2016			03/07/2016	Sofia Elnemr	1775648