Chemical Analysis Report

NE-DIST-2016-12-13-01

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

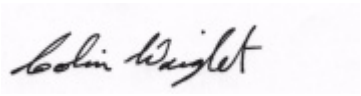
Event Description: **Deep Creek Kit A**
Request ID: **RQ-2016-12-12-20**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way
Suite 100
Jacksonville, FL 32256
Attn: Nicole Frederick

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: Colin Wright, Program Administrator

Date Certified: 06-JAN-2017 11:42



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: Deep Creek 1.25 mi. N of Pine Island Rd. **Collection Date/Time: 12/12/2016 11:15**

Field ID: G5NE0017 12122016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1857354	EPA 180.1 Rev. 2.0	Turbidity	3.2	A	NTU	P316740	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P317355	
		Sulfate	15		mg SO4/L	P317364	
	SM 2120 B	Color (true)	130	A	PCU	P316751	
	SM 2320 B-97	Total Alkalinity	134		mg CaCO3/L	P317055	
	SM 2540 C-97	TDS	229		mg/L	P317406	
	SM 2540 D-97	TSS	3	I	mg/L	P317284	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P317058	
1857355	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P317316	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P316913	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P317065	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P316981	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P316768	
1857356	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P316716	

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: P316740

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317355

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317364

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317316

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316913

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: P317065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316981

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316716

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

Reference Method: SM 2120 B
Batch ID: P316751

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P317055

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

Reference Method: SM 2540 C-97
Batch ID: P317406

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317284

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P317058

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316768

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: P317355

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317316

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316913

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316716

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

Reference Method: SM 2320 B-97
Batch ID: P317055

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

Reference Method: SM 4500 F-C-97
Batch ID: P317058

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	91 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P316768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857490	Chloride	99.4		P	90 - 110
1857497	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857490	Sulfate	94.3		P	90 - 110
1857497	Sulfate	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857342	Ammonia-N	95.8	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857683	Kjeldahl Nitrogen	102	98.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857342	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857142	Total-P	99.4	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857376	O-Phosphate-P	96.4	98.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P317058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1857125	Fluoride	101	102	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856734	Organic Carbon	104		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857354	Turbidity	3.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857490	Chloride	0.175	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857490	Sulfate	0.106	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857342	Ammonia-N	1.20	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857683	Kjeldahl Nitrogen	2.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317065

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: P317065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857342	NO2NO3-N	0.637	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857142	Total-P	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857376	O-Phosphate-P	1.56	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857354	Color (true)	0.176	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P317055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857125	Total Alkalinity	0.337	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P317406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857088	TDS	6.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P317058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1857125	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856734	Organic Carbon	0.0539	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: A73349
Included Lab Sample IDs: 1857356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73360
Included Lab Sample IDs: 1857354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A73361
Included Lab Sample IDs: 1857354

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

Reference Method: SM 5310 B-00
Run ID: A73366
Included Lab Sample IDs: 1857355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73481
Included Lab Sample IDs: 1857355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A73482
Included Lab Sample IDs: 1857354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73482
Included Lab Sample IDs: 1857354

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73485
Included Lab Sample IDs: 1857355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73506
Included Lab Sample IDs: 1857355

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73560
Included Lab Sample IDs: 1857355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73576
Included Lab Sample IDs: 1857354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	101	P/P	90 - 110
Sulfate	92.9	95.3	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					3.70	
EPA 300.0 Rev. 2.1	Chloride	101	99.4	99.6		0.175	
	Sulfate	94.4	94.3	93.6		0.106	
EPA 350.1 Rev. 2.0	Ammonia-N	102	95.8	97.9			1.20
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	102	98.3			2.67
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102	102			0.637
EPA 365.1 Rev. 2.0	Total-P	98.8	99.4	97.6			1.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	96.4	98.1			1.56
SM 2120 B	Color (true)					0.176	
SM 2320 B-97	Total Alkalinity	99.2				0.337	
SM 2540 C-97	TDS					6.00	
SM 4500 F-C-97	Fluoride	100	101	102			0.470
SM 5310 B-00	Organic Carbon	100	104				0.0539

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1857354
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1857354
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1857354
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1857355
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1857355
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1857355
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1857355
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1857356
SM 2120 B / E31780	True Color measured at 450 nm	1857354
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1857354
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1857354
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1857354
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1857354
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1857355

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	12/13/2016			12/14/2016 09:53	Sima Feizi	1857354
EPA 300.0 Rev. 2.1	12/13/2016			12/22/2016	Ping Hua	1857354
	12/13/2016			12/23/2016	Ping Hua	1857354
EPA 350.1 Rev. 2.0	12/13/2016			12/22/2016	Sofia Elnemr	1857355
EPA 351.2 Rev. 2.0	12/13/2016	12/16/2016	Adrian Shelby	12/20/2016	Joseph Suarez	1857355
EPA 353.2 Rev. 2.0	12/13/2016			12/20/2016	Beverly Y. Sanders	1857355
EPA 365.1 Rev. 2.0	12/13/2016	12/19/2016	Vijayalakshmi Reddy	12/20/2016	Lipi Saha	1857355
EPA 365.1 Rev. 2.0 dissolved	12/13/2016			12/13/2016 19:25	Julia Storbeck	1857356
SM 2120 B	12/13/2016			12/14/2016 10:06	Jared I. Manley	1857354
SM 2320 B-97	12/13/2016			12/16/2016	Dale L. Simmons	1857354
SM 2540 C-97	12/13/2016			12/15/2016	Yijie Li	1857354
SM 2540 D-97	12/13/2016			12/15/2016	Yijie Li	1857354
SM 4500 F-C-97	12/13/2016			12/16/2016	Dale L. Simmons	1857354
SM 5310 B-00	12/13/2016			12/13/2016	Julie Michelle Frank	1857355