Chemical Analysis Report

SO-DIST-2016-12-08-01

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

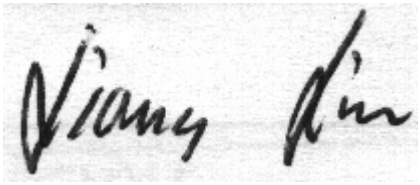
Event Description: **SMP: Snake River**
Request ID: **RQ-2016-12-05-20**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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: Liang Lin, Environmental Administrator

Date Certified: 30-DEC-2016 11:27



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: 3278P @ #4 SOUTH OF GOODLAND **Collection Date/Time: 12/07/2016 11:45**

Field ID: G1SD0037 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856126	EPA 180.1 Rev. 2.0	Turbidity	9.8		NTU	P316443	
	SM 2320 B-97	Total Alkalinity	141		mg CaCO3/L	P316734	
	SM 2540 D-97	TSS	10	A	mg/L	P317045	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P316735	
1856128	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P316865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P316692	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P316510	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P316593	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P316543	
1856130	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P316528	

Sample Location: ENRE9 HARNEY RIVER **Collection Date/Time: 12/07/2016 14:00**

Field ID: G5SD0040 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856127	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P316443	
	SM 2320 B-97	Total Alkalinity	211		mg CaCO3/L	P316734	
	SM 2540 D-97	TSS	7	I	mg/L	P317045	
	SM 4500 F-C-97	Fluoride	0.77		mg F/L	P316735	
1856129	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P316865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P316692	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P316510	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P316593	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P316543	
1856131	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P316528	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316443

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316865

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316692

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: P316510

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316593

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316528

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

Reference Method: SM 2320 B-97
Batch ID: P316734

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

Reference Method: SM 2540 D-97
Batch ID: P317045

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316735

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316543

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316865

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316692

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316692

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: P316510

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: P316593

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316528

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

Reference Method: SM 2320 B-97
Batch ID: P316734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316735

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P316543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1855796	Ammonia-N	101	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316692

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856108	Kjeldahl Nitrogen	102	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856128	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856107	Total-P	96.1	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856130	O-Phosphate-P	98.6	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P316735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856742	Fluoride	97.7	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856106	Organic Carbon	96.3	95.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856103	Turbidity	8.09	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1855796	Ammonia-N	0.513	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856108	Kjeldahl Nitrogen	4.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856128	NO2NO3-N	0.443	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856107	Total-P	1.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856130	O-Phosphate-P	1.43	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856742	Total Alkalinity	0.365	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P317045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856126	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P316735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856742	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856106	Organic Carbon	0.898	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 180.1 Rev. 2.0
Run ID: A73258
Included Lab Sample IDs: 1856126, 1856127

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73269
Included Lab Sample IDs: 1856128, 1856129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73279
Included Lab Sample IDs: 1856130, 1856131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	97.7	P/P	90 - 110
O-Phosphate-P	99.6	99.6	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A73284
Included Lab Sample IDs: 1856128, 1856129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73350
Included Lab Sample IDs: 1856128, 1856129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	98.8	P/P	90 - 110
Total-P	98.8	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A73358
Included Lab Sample IDs: 1856126, 1856127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.5	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73358
Included Lab Sample IDs: 1856126, 1856127

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A73358
Included Lab Sample IDs: 1856126, 1856127

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73395
Included Lab Sample IDs: 1856128, 1856129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73402
Included Lab Sample IDs: 1856128, 1856129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	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					8.09	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101	99.4			0.513
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	102	107			4.15
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	103			0.443
EPA 365.1 Rev. 2.0	Total-P	103	96.1	94.3			1.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	98.6	100			1.43
SM 2320 B-97	Total Alkalinity	98.5				0.365	
SM 2540 D-97	TSS					0.0	
SM 4500 F-C-97	Fluoride	95.8	97.7	97.7			0.0
SM 5310 B-00	Organic Carbon	99.0	96.3	95.3			0.898

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1856126, 1856127
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1856128, 1856129
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1856128, 1856129
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1856128, 1856129
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1856128, 1856129
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1856130, 1856131

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1856126, 1856127
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1856126, 1856127
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1856126, 1856127
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1856128, 1856129

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	12/08/2016			12/08/2016 16:30	Sima Feizi	1856126, 1856127
EPA 350.1 Rev. 2.0	12/08/2016			12/14/2016	Sofia Elnemr	1856128, 1856129
EPA 351.2 Rev. 2.0	12/08/2016	12/13/2016	Adrian Shelby	12/15/2016	Joseph Suarez	1856128, 1856129
EPA 353.2 Rev. 2.0	12/08/2016			12/09/2016	Beverly Y. Sanders	1856128, 1856129
EPA 365.1 Rev. 2.0	12/08/2016	12/12/2016	Vijayalakshmi Reddy	12/13/2016	Lipi Saha	1856128, 1856129
EPA 365.1 Rev. 2.0 dissolved	12/08/2016			12/08/2016 14:39	Julia Storbeck	1856130
	12/08/2016			12/08/2016 15:51	Julia Storbeck	1856131
SM 2320 B-97	12/08/2016			12/13/2016	Dale L. Simmons	1856126, 1856127
SM 2540 D-97	12/08/2016			12/13/2016	Sima Feizi	1856126, 1856127
SM 4500 F-C-97	12/08/2016			12/13/2016	Dale L. Simmons	1856126, 1856127
SM 5310 B-00	12/08/2016			12/10/2016	Julie Michelle Frank	1856128, 1856129