Chemical Analysis Report

NW-DIST-2016-07-27-01

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

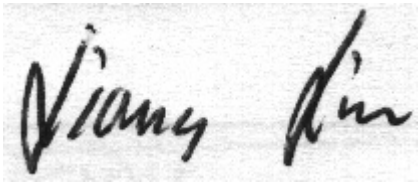
Event Description: **WBID 10G 517 683 167A**
Request ID: **RQ-2016-07-25-09**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 16-AUG-2016 15:05



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: GUM CREEK ABOVE BONITA DRIVE **Collection Date/Time: 07/25/2016 12:15**

Field ID: G4NW0381 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1819285	EPA 180.1 Rev. 2.0	Turbidity	2.9	Q	NTU	P308761	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P309264	
		Sulfate	0.70		mg SO4/L	P309267	
	SM 2120 B	Color (true)	59	Q	PCU	P308709	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P308918	
	SM 2540 C-97	TDS	44		mg/L	P309412	
	SM 2540 D-97	TSS	3	I	mg/L	P309009	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308921	
1819289	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P308941	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P309066	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P309030	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P309179	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P309046	
1819293	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308701	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The sample expired upon receipt.
SM 2120 B: The sample expired upon receipt.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEAN CREEK, WESTHEAD AT VONNIE TOLBERT ROAD **Collection Date/Time: 07/25/2016 15:10**

Field ID: G4NW0279 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1819286	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P308761	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P309264	
		Sulfate	1.3		mg SO4/L	P309267	
	SM 2120 B	Color (true)	13		PCU	P308709	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P308918	
	SM 2540 C-97	TDS	26		mg/L	P309412	
	SM 2540 D-97	TSS	4	I	mg/L	P309009	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308921	
1819290	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P308941	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P309066	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P309030	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P309179	
	SM 5310 B-00	Organic Carbon	1.2		mg C/L	P309046	
1819294	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308701	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WEST HEAD OF DEAN CREEK AT NATALIE LANE **Collection Date/Time: 07/25/2016 15:25**

Field ID: G4NW0278 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1819287	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P308761	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P309264	
		Sulfate	1.2		mg SO4/L	P309267	
	SM 2120 B	Color (true)	36	A	PCU	P308709	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P308918	
	SM 2540 C-97	TDS	19	I	mg/L	P309412	
	SM 2540 D-97	TSS	4	I	mg/L	P309009	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308921	
1819291	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P308941	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P309066	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P309030	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P309179	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P309046	
1819295	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308701	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEAN CREEK UPSTREAM OF SR 87 **Collection Date/Time: 07/25/2016 15:45**

Field ID: G4NW0362 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1819288	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P308761	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P309264	
		Sulfate	1.2		mg SO4/L	P309267	
	SM 2120 B	Color (true)	27		PCU	P308709	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P308918	
	SM 2540 C-97	TDS	25		mg/L	P309412	
	SM 2540 D-97	TSS	3	I	mg/L	P309009	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P308921	
1819292	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P308941	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P309066	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P309030	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P309179	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P309046	
1819296	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P308701	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P308761

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309264

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309267

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308941

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309066

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309030

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309179

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308701

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

Reference Method: SM 2120 B
Batch ID: P308709

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P308918

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

Reference Method: SM 2540 C-97
Batch ID: P309412

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309009

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P308921

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P309046

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: P309264

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309066

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: P309066

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309030

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: P309179

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308701

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

Reference Method: SM 2320 B-97
Batch ID: P308918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P308921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P309046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818893	Chloride	101		P	90 - 110
1819216	Chloride	98.9		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818893	Sulfate	99.8		P	90 - 110
1819216	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819289	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819290	Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819290	Total-P	99.2	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819533	O-Phosphate-P	98.2	99.7	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P309046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1818896	Organic Carbon	99.5	99.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P308761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819215	Turbidity	1.63	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818893	Chloride	0.0514	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818893	Sulfate	1.82	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819289	Ammonia-N	1.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819290	Kjeldahl Nitrogen	0.800	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819289	NO2NO3-N	0.154	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819290	Total-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819533	O-Phosphate-P	1.52	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819287	Color (true)	0.106	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P308918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819279	Total Alkalinity	0.107	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P309412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819215	TDS	8.24	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P308921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819279	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P309046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1818896	Organic Carbon	0.335	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: A70783
Included Lab Sample IDs: 1819293, 1819294, 1819295, 1819296

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

Reference Method: SM 2120 B
Run ID: A70788
Included Lab Sample IDs: 1819285, 1819286, 1819287, 1819288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	97.6	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70799
Included Lab Sample IDs: 1819285, 1819286, 1819287, 1819288

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

Reference Method: SM 2320 B-97
Run ID: A70856
Included Lab Sample IDs: 1819285, 1819286, 1819287, 1819288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A70856
Included Lab Sample IDs: 1819285, 1819286, 1819287, 1819288

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70861
Included Lab Sample IDs: 1819289, 1819290, 1819291, 1819292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.7	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70885
Included Lab Sample IDs: 1819285, 1819286, 1819287, 1819288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	100	P/P	90 - 110
Sulfate	98.6	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70894
Included Lab Sample IDs: 1819289, 1819290, 1819291, 1819292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A70902
Included Lab Sample IDs: 1819289, 1819290, 1819291, 1819292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.9	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70972
Included Lab Sample IDs: 1819289, 1819290, 1819291, 1819292

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A71036
Included Lab Sample IDs: 1819289, 1819290, 1819291, 1819292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	100	P/P	90 - 110
Kjeldahl Nitrogen	99.0	93.1	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					1.63	
EPA 300.0 Rev. 2.1	Chloride	99.0	101	98.9		0.0514	
	Sulfate	92.3	99.8	96.3		1.82	
EPA 350.1 Rev. 2.0	Ammonia-N	106	101	102			1.04
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	109	108			0.800
EPA 353.2 Rev. 2.0	NO2NO3-N	104					0.154
EPA 365.1 Rev. 2.0	Total-P	101	99.2	97.8			1.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.2	99.7			1.52
SM 2120 B	Color (true)					0.106	
SM 2320 B-97	Total Alkalinity	103				0.107	
SM 2540 C-97	TDS					8.24	
SM 4500 F-C-97	Fluoride	100					0.470
SM 5310 B-00	Organic Carbon	99.8	99.5	99.9			0.335

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1819285, 1819286, 1819287, 1819288
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1819285, 1819286, 1819287, 1819288
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1819285, 1819286, 1819287, 1819288
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1819289, 1819290, 1819291, 1819292
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1819289, 1819290, 1819291, 1819292
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1819289, 1819290, 1819291, 1819292
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1819289, 1819290, 1819291, 1819292
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1819293, 1819294, 1819295, 1819296
SM 2120 B / E31780	True Color measured at 450 nm	1819285, 1819286, 1819287, 1819288
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1819285, 1819286, 1819287, 1819288
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1819285, 1819286, 1819287, 1819288
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1819285, 1819286, 1819287, 1819288
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1819285, 1819286, 1819287, 1819288
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1819289, 1819290, 1819291, 1819292

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	07/27/2016			07/27/2016 13:56	Sima Feizi	1819285
	07/27/2016			07/27/2016 13:58	Sima Feizi	1819286
	07/27/2016			07/27/2016 13:59	Sima Feizi	1819287
	07/27/2016			07/27/2016 14:00	Sima Feizi	1819288
EPA 300.0 Rev. 2.1	07/27/2016			08/05/2016	Ping Hua	1819285, 1819286, 1819287, 1819288
EPA 350.1 Rev. 2.0	07/27/2016			07/29/2016	Julie Michelle Frank	1819289, 1819290, 1819291, 1819292
EPA 351.2 Rev. 2.0	07/27/2016	08/03/2016	Sofia Elnemr	08/04/2016	Christopher Armour	1819289, 1819290, 1819291, 1819292
EPA 353.2 Rev. 2.0	07/27/2016			08/02/2016	Peter D. Kaus	1819289, 1819290, 1819291, 1819292
EPA 365.1 Rev. 2.0	07/27/2016	08/04/2016	Vijayalakshmi Reddy	08/05/2016	Virginia P. Brown	1819289, 1819290, 1819291, 1819292
EPA 365.1 Rev. 2.0 dissolved	07/27/2016			07/27/2016 12:12	Julia Storbeck	1819293
	07/27/2016			07/27/2016 12:13	Julia Storbeck	1819294
	07/27/2016			07/27/2016 12:14	Julia Storbeck	1819295
	07/27/2016			07/27/2016 12:15	Julia Storbeck	1819296
SM 2120 B	07/27/2016			07/27/2016 14:02	Rochelle Y Jackson	1819286
	07/27/2016			07/27/2016 14:04	Rochelle Y Jackson	1819287
	07/27/2016			07/27/2016 14:05	Rochelle Y Jackson	1819285, 1819288
SM 2320 B-97	07/27/2016			07/30/2016	Dale L. Simmons	1819285, 1819286, 1819287, 1819288
SM 2540 C-97	07/27/2016			07/29/2016	Yijie Li	1819285, 1819286, 1819287, 1819288
SM 2540 D-97	07/27/2016			07/29/2016	Yijie Li	1819285, 1819286, 1819287, 1819288
SM 4500 F-C-97	07/27/2016			07/30/2016	Dale L. Simmons	1819285, 1819286, 1819287, 1819288
SM 5310 B-00	07/27/2016			08/02/2016	Sofia Elnemr	1819289, 1819290, 1819291, 1819292