Chemical Analysis Report

CEN-DIST-2016-11-08-02

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

Event Description: **Unnamed Branch (2642) + FB**
Request ID: **RQ-2016-10-31-23**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 30-NOV-2016 13:53

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: Unnamed Branch @ 750m US of Confluence w/ Tomoka River **Collection Date/Time: 11/07/2016 12:10**

Field ID: G5CE0017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848225	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P314869	
	SM 2320 B-97	Total Alkalinity	181		mg CaCO3/L	P315211	
	SM 2540 D-97	TSS	3	I	mg/L	P315498	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P315214	
1848227	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P315186	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P315511	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P315095	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P315261	MS
	SM 5310 B-00	Organic Carbon	19		mg C/L	P314974	
1848229	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P314836	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Field Blank **Collection Date/Time: 11/07/2016 12:30**

Field ID: Field Blank Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1848226	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P314869	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P315137	
	SM 2540 D-97	TSS	2	U	mg/L	P315495	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P315141	
1848228	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P315512	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P314977	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P315260	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P314971	
1848230	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P314835	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P314869

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315184

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315186

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315511

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314977

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315095

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315260

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315261

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314836

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P315137

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

Reference Method: SM 2320 B-97
Batch ID: P315211

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

Reference Method: SM 2540 D-97
Batch ID: P315495

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P315498

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P315141

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P315214

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P314971

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

Reference Method: SM 5310 B-00
Batch ID: P314974

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: P315184

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315184

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315186

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: P315511

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

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: P314977

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315095

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: P315260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315261

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314836

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

Reference Method: SM 2320 B-97
Batch ID: P315137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P315211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P315141

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P315214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P314971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P314974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847484	Ammonia-N	107	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315511

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: P315511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848291	Kjeldahl Nitrogen	96.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848416	Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848192	NO2NO3-N	94.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1847980	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848256	Total-P	95.9	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848297	Total-P	87.3	90.0	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848103	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848305	O-Phosphate-P	96.7	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P315141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848239	Fluoride	98.6	100	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P315214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848673	Fluoride	97.8	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P314971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848094	Organic Carbon	95.7	96.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P314974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1848207	Organic Carbon	90.0	93.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P314869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848206	Turbidity	1.02	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848134	Ammonia-N	1.21	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847484	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848291	Kjeldahl Nitrogen	2.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P315512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848416	Kjeldahl Nitrogen	0.425	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P314977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848192	NO2NO3-N	0.749	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1847980	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848256	Total-P	0.763	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848297	Total-P	2.92	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848103	O-Phosphate-P	0.298	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P314836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848305	O-Phosphate-P	3.95	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P315137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848239	Total Alkalinity	0.0614	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P315211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848673	Total Alkalinity	0.499	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P315141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848239	Fluoride	1.54	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P315214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848673	Fluoride	1.52	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P314971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848094	Organic Carbon	0.396	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P314974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1848207	Organic Carbon	2.96	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: A72703
Included Lab Sample IDs: 1848229, 1848230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	97.9	P/P	90 - 110
O-Phosphate-P	99.3	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72721
Included Lab Sample IDs: 1848225, 1848226

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72754
Included Lab Sample IDs: 1848228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.5	95.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A72755
Included Lab Sample IDs: 1848227, 1848228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	95.4	P/P	90 - 110
Organic Carbon	97.8	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72782
Included Lab Sample IDs: 1848227

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

Reference Method: SM 2320 B-97
Run ID: A72801
Included Lab Sample IDs: 1848226

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

Reference Method: SM 4500 F-C-97
Run ID: A72801
Included Lab Sample IDs: 1848226

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: A72814
Included Lab Sample IDs: 1848227, 1848228

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

Reference Method: SM 2320 B-97
Run ID: A72821
Included Lab Sample IDs: 1848225

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

Reference Method: SM 4500 F-C-97
Run ID: A72821
Included Lab Sample IDs: 1848225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72883
Included Lab Sample IDs: 1848227

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72883
Included Lab Sample IDs: 1848227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72911
Included Lab Sample IDs: 1848228

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72959
Included Lab Sample IDs: 1848227, 1848228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	99.7	P/P	90 - 110
Kjeldahl Nitrogen	97.7	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					1.02	
EPA 350.1 Rev. 2.0	Ammonia-N	104					1.21
	Ammonia-N	103	107	109			1.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	96.9	101			2.92
	Kjeldahl Nitrogen	101	106	106			0.425
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	94.0				0.749
	NO2NO3-N	104	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	98.2	95.9	95.1			0.763
	Total-P	98.7	87.3	90.0			2.92
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	101			0.298
	O-Phosphate-P	100	96.7	101			3.95
SM 2320 B-97	Total Alkalinity	102				0.0614	
	Total Alkalinity	100				0.499	
SM 4500 F-C-97	Fluoride	98.1	98.6	100			1.54
	Fluoride	98.2	97.8	100			1.52
SM 5310 B-00	Organic Carbon	101	95.7	96.1			0.396
	Organic Carbon	101	90.0	93.3			2.96

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1848225, 1848226

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1848227, 1848228
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1848227, 1848228
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1848227, 1848228
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1848227, 1848228
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1848229, 1848230
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1848225, 1848226
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1848225, 1848226
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1848225, 1848226
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1848227, 1848228

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	11/08/2016			11/08/2016 16:50	Blanca Fach	1848225, 1848226
EPA 350.1 Rev. 2.0	11/08/2016			11/15/2016	Julie Michelle Frank	1848227, 1848228
EPA 351.2 Rev. 2.0	11/08/2016	11/21/2016	Martin Acosta	11/22/2016	Joseph Suarez	1848227, 1848228
EPA 353.2 Rev. 2.0	11/08/2016			11/10/2016	Beverly Y. Sanders	1848228
	11/08/2016			11/14/2016	Beverly Y. Sanders	1848227
EPA 365.1 Rev. 2.0	11/08/2016	11/16/2016	Adrian Shelby	11/18/2016	Lipi Saha	1848227, 1848228
EPA 365.1 Rev. 2.0 dissolved	11/08/2016			11/08/2016 16:12	Julia Storbeck	1848230
	11/08/2016			11/08/2016 16:51	Julia Storbeck	1848229
SM 2320 B-97	11/08/2016			11/15/2016	Dale L. Simmons	1848225, 1848226
SM 2540 D-97	11/08/2016			11/11/2016	Yijie Li	1848225, 1848226
SM 4500 F-C-97	11/08/2016			11/15/2016	Dale L. Simmons	1848225, 1848226
SM 5310 B-00	11/08/2016			11/09/2016	Julie Michelle Frank	1848228
	11/08/2016			11/10/2016	Julie Michelle Frank	1848227