

Chemical Analysis Report

NE-DIST-2017-11-21-02

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

Event Description: **Nassau East**
Request ID: **RQ-2017-11-20-19**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 11-DEC-2017 16:20

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Thomas Crk 4 mi. below City Prison

Collection Date/Time: 11/20/2017 11:25

Field ID: G4NE0224 11202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947986	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P335795	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P336242	
	SM 2540 D-97	TSS	3	I	mg/L	P336298	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P336246	
1947989	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P336337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P336179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P336039	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P336068	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P336197	
1947992	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P335745	

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: Thomas Crk 6 mi. below City Prison

Collection Date/Time: 11/20/2017 12:15

Field ID: G4NE0008 11202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947987	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P335795	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P336242	
	SM 2540 D-97	TSS	6	IA	mg/L	P336299	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P336246	
1947990	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P336337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P336179	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P336039	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P336068	
	SM 5310 B-00	Organic Carbon	37		mg C/L	P336197	
1947993	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.085		mg P/L	P335745	

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: Nassau Sound @ Fishing Bridge

Collection Date/Time: 11/20/2017 15:05

Field ID: G4NE0281 11202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1947988	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P335795	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P335851	
	SM 2540 D-97	TSS	30		mg/L	P336300	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P335854	
1947991	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P336251	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P336175	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P336119	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P335979	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P336262	
1947994	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P335748	

Field ID: G4NE0281 11202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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: P335795

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336251

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336337

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336175

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336179

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336039

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336119

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335979

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336068

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335745

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335748

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

Reference Method: SM 2320 B-97
Batch ID: P335851

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

Reference Method: SM 2320 B-97
Batch ID: P336242

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

Reference Method: SM 2540 D-97
Batch ID: P336298

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336299

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336300

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335854

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P336246

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336197

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

Reference Method: SM 5310 B-00
Batch ID: P336262

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: P336251

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336337

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336119

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336119

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335979

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: P336068

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: P335745

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335748

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.2		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P335851

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

Reference Method: SM 2320 B-97
Batch ID: P336242

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

Reference Method: SM 4500 F-C-97
Batch ID: P335854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P336246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P336197

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

Reference Method: SM 5310 B-00
Batch ID: P336262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946862	Ammonia-N	103	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947979	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947641	Kjeldahl Nitrogen	98.9	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948019	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947908	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947643	NO2NO3-N	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335979

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948112	Total-P	94.7	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948021	Total-P	100	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947900	O-Phosphate-P	90.5	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947994	O-Phosphate-P	90.2	94.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946323	Fluoride	97.0	97.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P336246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948163	Fluoride	98.3	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P336197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947934	Organic Carbon	96.7	98.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P336262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948541	Organic Carbon	98.5	98.1	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947907	Turbidity	3.54	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946862	Ammonia-N	2.79	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947979	Ammonia-N	0.889	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947641	Kjeldahl Nitrogen	0.889	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948019	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947908	NO2NO3-N	1.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947643	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948112	Total-P	1.67	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P336068

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948021	Total-P	0.740	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P335745

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947900	O-Phosphate-P	6.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P335748

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947994	O-Phosphate-P	4.11	Spike	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P335851

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946323	Total Alkalinity	1.02	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97

Batch ID: P336242

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948163	Total Alkalinity	0.0237	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97

Batch ID: P335854

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946323	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97

Batch ID: P336246

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948163	Fluoride	1.42	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00

Batch ID: P336197

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947934	Organic Carbon	0.944	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P336262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948541	Organic Carbon	0.379	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: A80443
Included Lab Sample IDs: 1947992, 1947993, 1947994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.1	96.7	P/P	90 - 110
O-Phosphate-P	98.4	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80463
Included Lab Sample IDs: 1947986, 1947987, 1947988

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

Reference Method: SM 2320 B-97
Run ID: A80493
Included Lab Sample IDs: 1947988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80493
Included Lab Sample IDs: 1947988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80575
Included Lab Sample IDs: 1947989, 1947990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80597
Included Lab Sample IDs: 1947991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80605
Included Lab Sample IDs: 1947989, 1947990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80607
Included Lab Sample IDs: 1947991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A80633
Included Lab Sample IDs: 1947989, 1947990

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

Reference Method: SM 2320 B-97
Run ID: A80654
Included Lab Sample IDs: 1947986, 1947987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80654
Included Lab Sample IDs: 1947986, 1947987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80655
Included Lab Sample IDs: 1947991

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

Reference Method: SM 5310 B-00
Run ID: A80659
Included Lab Sample IDs: 1947991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80695
Included Lab Sample IDs: 1947989, 1947990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	98.7	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80699

Included Lab Sample IDs: 1947989, 1947990, 1947991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	104	P/P	90 - 110
Kjeldahl Nitrogen	97.7	94.6	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				3.54	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103 106			2.79
	Ammonia-N	104	102 103			0.889
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.9	98.9 98.0			0.889
	Kjeldahl Nitrogen	99.6	101 105			2.90
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106 104			1.61
	NO2NO3-N	106	107 106			0.468
EPA 365.1 Rev. 2.0	Total-P	98.2	94.7 96.3			1.67
	Total-P	101	100 99.7			0.740
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	90.5 97.1			6.19
	O-Phosphate-P	95.2	90.2 94.6			4.11
SM 2320 B-97	Total Alkalinity	103			1.02	
	Total Alkalinity	102			0.0237	
SM 4500 F-C-97	Fluoride	98.0	97.0 97.0			0.0
	Fluoride	99.5	98.3 101			1.42
SM 5310 B-00	Organic Carbon	101	96.7 98.0			0.944
	Organic Carbon	98.7	98.5 98.1			0.379

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1947986, 1947987, 1947988
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1947989, 1947990, 1947991
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1947989, 1947990, 1947991
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1947989, 1947990, 1947991
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1947989, 1947990, 1947991
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1947992, 1947993, 1947994
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1947986, 1947987, 1947988
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1947986, 1947987, 1947988
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1947986, 1947987, 1947988
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1947989, 1947990, 1947991

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	11/21/2017			11/21/2017 16:18	DeAsia Armster	1947986, 1947987, 1947988
EPA 350.1 Rev. 2.0	11/21/2017			12/01/2017	Sofia Elnemr	1947991
	11/21/2017			12/04/2017	Sofia Elnemr	1947989, 1947990
EPA 351.2 Rev. 2.0	11/21/2017	12/01/2017	Adrian Shelby	12/04/2017	Joseph Suarez	1947989, 1947990, 1947991
EPA 353.2 Rev. 2.0	11/21/2017			11/29/2017	Beverly Y. Sanders	1947989, 1947990
	11/21/2017			11/30/2017	Beverly Y. Sanders	1947991
EPA 365.1 Rev. 2.0	11/21/2017	11/28/2017	Sima Feizi	11/29/2017	Lipi Saha	1947991
	11/21/2017	11/29/2017	Sima Feizi	11/30/2017	Lipi Saha	1947989, 1947990
EPA 365.1 Rev. 2.0 dissolved	11/21/2017			11/21/2017 14:10	Megan Treadwell	1947994
	11/21/2017			11/21/2017 15:07	Megan Treadwell	1947992
	11/21/2017			11/21/2017 15:08	Megan Treadwell	1947993
SM 2320 B-97	11/21/2017			11/23/2017	Dale L. Simmons	1947988
	11/21/2017			12/02/2017	Dale L. Simmons	1947986, 1947987
SM 2540 D-97	11/21/2017			11/25/2017	Yijie Li	1947986, 1947987, 1947988
SM 4500 F-C-97	11/21/2017			11/23/2017	Dale L. Simmons	1947988
	11/21/2017			12/02/2017	Dale L. Simmons	1947986, 1947987
SM 5310 B-00	11/21/2017			11/29/2017	Ping Hua	1947989, 1947990
	11/21/2017			12/01/2017	Ping Hua	1947991