Chemical Analysis Report

NE-DIST-2017-10-05-01

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-2017-09-18-13**
Customer: **NE-DIST**
Project ID: **SMP**

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

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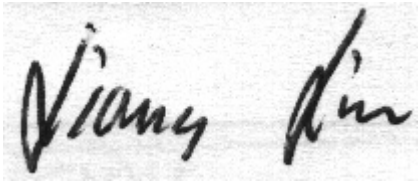
Certified by: Liang Lin, Environmental Administrator

Date Certified: 24-OCT-2017 11:46



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: 10/04/2017 12:30**

Field ID: G4NE0224 10042017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934369	EPA 180.1 Rev. 2.0	Turbidity	5.6	A	NTU	P332812	
	EPA 300.0 Rev. 2.1	Sulfate	1.8		mg SO4/L	P333242	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P333346	
	SM 2540 D-97	TSS	5	I	mg/L	P333003	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P333349	
1934373	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P333232	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P333123	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333166	
	EPA 365.1 Rev. 2.0	Total-P	0.42		mg P/L	P333013	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P333154	
1934377	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P332846	

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 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Thomas Crk 6 mi. below City Prison **Collection Date/Time: 10/04/2017 13:15**

Field ID: G4NE0008 10042017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934370	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P332812	
	EPA 300.0 Rev. 2.1	Sulfate	4.5		mg SO4/L	P333242	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P333346	
	SM 2540 D-97	TSS	2	UA	mg/L	P333003	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P333349	
1934374	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P333232	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P333123	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333167	
	EPA 365.1 Rev. 2.0	Total-P	0.32		mg P/L	P333063	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P333154	
1934378	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P332847	

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 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Nassau Sound @ Fishing Bridge **Collection Date/Time: 10/04/2017 09:45**

Field ID: G4NE0281 10042017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934371	EPA 180.1 Rev. 2.0	Turbidity	23		NTU	P332812	
	EPA 300.0 Rev. 2.1	Sulfate	2.3E+03		mg SO4/L	P333242	
	SM 2320 B-97	Total Alkalinity	104		mg CaCO3/L	P333074	
	SM 2540 D-97	TSS	40		mg/L	P333009	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P333078	

Field ID: G4NE0281 10042017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934375	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P333234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P333124	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P333419	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P332938	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P333408	
1934379	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P332851	

Sample Location: Field Blank **Collection Date/Time: 10/04/2017 12:40**

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

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934372	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P332812	
	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P333242	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333346	
	SM 2540 D-97	TSS	2	U	mg/L	P333003	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333349	
1934376	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P333232	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P333127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333167	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P333056	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P333154	
1934380	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332847	

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 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: P332812

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333232

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: P333234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333124

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333166

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332938

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333013

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: P333056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

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

Reference Method: SM 2320 B-97
Batch ID: P333074

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

Reference Method: SM 2320 B-97
Batch ID: P333346

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

Reference Method: SM 2540 D-97
Batch ID: P333003

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333009

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P333154

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

Reference Method: SM 5310 B-00
Batch ID: P333408

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: P333242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333232

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: P333234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333124

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: P333124

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333166

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

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: P332938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333013

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

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

Reference Method: SM 2320 B-97
Batch ID: P333074

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

Reference Method: SM 2320 B-97
Batch ID: P333346

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

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P333154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P333408

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935026	Sulfate	95.9		P	90 - 110
1935059	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934375	Ammonia-N	104	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934345	Kjeldahl Nitrogen	98.7	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934985	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934448	Kjeldahl Nitrogen	95.8	93.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934324	NO2NO3-N	99.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934420	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934375	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934445	Total-P	99.6	99.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934466	Total-P	97.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934421	Total-P	98.5	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934342	O-Phosphate-P	96.4	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934403	O-Phosphate-P	96.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934379	O-Phosphate-P	95.3	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932285	Fluoride	95.5	95.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P333154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934345	Organic Carbon	97.7	96.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P333408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933542	Organic Carbon	96.5	94.4	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934369	Turbidity	0.180	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935026	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934325	Ammonia-N	1.73	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934375	Ammonia-N	2.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934345	Kjeldahl Nitrogen	5.43	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934985	Kjeldahl Nitrogen	0.151	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934448	Kjeldahl Nitrogen	1.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934324	NO2NO3-N	0.479	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934420	NO2NO3-N	1.91	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934375	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934445	Total-P	0.319	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934325	Total-P	0.160	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934466	Total-P	2.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934421	Total-P	0.609	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934342	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934403	O-Phosphate-P	4.27	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934379	O-Phosphate-P	0.636	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934454	Total Alkalinity	0.754	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P333346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934884	Total Alkalinity	0.124	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P333009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934612	TSS	1.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932285	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934884	Fluoride	0.992	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P333154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934345	Organic Carbon	1.25	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P333408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933542	Organic Carbon	1.78	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: A79366
Included Lab Sample IDs: 1934369, 1934370, 1934371, 1934372

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79378
Included Lab Sample IDs: 1934377, 1934378, 1934379, 1934380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.9	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79457
Included Lab Sample IDs: 1934373

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79460
Included Lab Sample IDs: 1934375

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

Reference Method: SM 2320 B-97
Run ID: A79462
Included Lab Sample IDs: 1934371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A79462
Included Lab Sample IDs: 1934371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A79473
Included Lab Sample IDs: 1934369, 1934370, 1934371, 1934372

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79483
Included Lab Sample IDs: 1934373, 1934374, 1934376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A79484
Included Lab Sample IDs: 1934373, 1934374, 1934376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79486
Included Lab Sample IDs: 1934374

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79494
Included Lab Sample IDs: 1934376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79510
Included Lab Sample IDs: 1934373, 1934374, 1934375, 1934376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	98.5	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79520
Included Lab Sample IDs: 1934376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A79535
Included Lab Sample IDs: 1934369, 1934370, 1934372

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: A79535
Included Lab Sample IDs: 1934369, 1934370, 1934372

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A79535
Included Lab Sample IDs: 1934369, 1934370, 1934372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79549
Included Lab Sample IDs: 1934373, 1934374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A79563
Included Lab Sample IDs: 1934375

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79566
Included Lab Sample IDs: 1934375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	93.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79568
Included Lab Sample IDs: 1934375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	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					0.180	
EPA 300.0 Rev. 2.1	Sulfate	96.7	95.9	96.8		1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	102					1.73
	Ammonia-N	101	104	107			2.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	98.7	105			5.43
	Kjeldahl Nitrogen	103	101	102			0.151
	Kjeldahl Nitrogen	98.5	95.8	93.5			1.32
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.8				0.479
	NO2NO3-N	104	106	104			1.91
	NO2NO3-N	102	104	104			0.0
EPA 365.1 Rev. 2.0	Total-P	93.6	99.6	99.9			0.319

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0	Total-P	101					0.160
	Total-P	96.4	97.6	100			2.74
	Total-P	98.8	98.5	99.2			0.609
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	96.4	98.2			1.29
	O-Phosphate-P	97.6	96.2	100			4.27
	O-Phosphate-P	104	95.3	96.0			0.636
SM 2320 B-97	Total Alkalinity	103				0.754	
	Total Alkalinity	103				0.124	
SM 2540 D-97	TSS					1.90	
SM 4500 F-C-97	Fluoride	97.4	95.5	95.5			0.0
	Fluoride	96.4					0.992
SM 5310 B-00	Organic Carbon	97.8	97.7	96.4			1.25
	Organic Carbon	100	96.5	94.4			1.78

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1934369, 1934370, 1934371, 1934372
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1934369, 1934370, 1934371, 1934372
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1934373, 1934374, 1934375, 1934376
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1934373, 1934374, 1934375, 1934376
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1934373, 1934374, 1934375, 1934376
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1934373, 1934374, 1934375, 1934376
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1934377, 1934378, 1934379, 1934380
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1934369, 1934370, 1934371, 1934372
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1934369, 1934370, 1934371, 1934372
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1934369, 1934370, 1934371, 1934372
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1934373, 1934374, 1934375, 1934376

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	10/05/2017			10/05/2017 15:12	DeAsia Armster	1934369, 1934370, 1934371, 1934372
EPA 300.0 Rev. 2.1	10/05/2017			10/10/2017	Julia Storbeck	1934369, 1934370, 1934371, 1934372
EPA 350.1 Rev. 2.0	10/05/2017			10/11/2017	Sofia Elnemr	1934373, 1934374, 1934375, 1934376
EPA 351.2 Rev. 2.0	10/05/2017	10/11/2017	Adrian Shelby	10/12/2017	Joseph Suarez	1934376
	10/05/2017	10/11/2017	Adrian Shelby	10/13/2017	Joseph Suarez	1934373, 1934374
	10/05/2017	10/11/2017	Adrian Shelby	10/13/2017	Virginia P. Brown	1934375
EPA 353.2 Rev. 2.0	10/05/2017			10/11/2017	Beverly Y. Sanders	1934373, 1934374, 1934376
	10/05/2017			10/16/2017	Beverly Y. Sanders	1934375
EPA 365.1 Rev. 2.0	10/05/2017	10/09/2017	Sima Feizi	10/10/2017	Lipi Saha	1934373, 1934375
	10/05/2017	10/10/2017	Sima Feizi	10/11/2017	Lipi Saha	1934374, 1934376
EPA 365.1 Rev. 2.0 dissolved	10/05/2017			10/05/2017 14:54	Megan Treadwell	1934379
	10/05/2017			10/05/2017 15:26	Megan Treadwell	1934377
	10/05/2017			10/05/2017 15:27	Megan Treadwell	1934378
	10/05/2017			10/05/2017 15:28	Megan Treadwell	1934380
SM 2320 B-97	10/05/2017			10/10/2017	Dale L. Simmons	1934371
	10/05/2017			10/13/2017	Dale L. Simmons	1934369, 1934370, 1934372
SM 2540 D-97	10/05/2017			10/06/2017	DeAsia Armster	1934369, 1934370, 1934371, 1934372
SM 4500 F-C-97	10/05/2017			10/10/2017	Dale L. Simmons	1934371
	10/05/2017			10/13/2017	Dale L. Simmons	1934369, 1934370, 1934372
SM 5310 B-00	10/05/2017			10/11/2017	Ping Hua	1934373, 1934374, 1934376
	10/05/2017			10/13/2017	Ping Hua	1934375