

Chemical Analysis Report

NE-DIST-2017-03-02-02

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-2017-03-20-08**
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

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: Colin Wright, Program Administrator

Date Certified: 28-MAR-2017 16:56

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular 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: 03/01/2017 13:20

Field ID: G4NE0224 03012017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877253	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P320870	
	EPA 300.0 Rev. 2.1	Sulfate	22		mg SO4/L	P322124	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P321422	
	SM 2540 D-97	TSS	12		mg/L	P321319	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P321426	
1877257	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P321261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P321033	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P321081	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P321068	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P320953	
1877261	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P320859	

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: 03/01/2017 12:50

Field ID: G4NE0008 03012017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877254	EPA 180.1 Rev. 2.0	Turbidity	25		NTU	P320870	
	EPA 300.0 Rev. 2.1	Sulfate	65		mg SO4/L	P322124	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P321422	
	SM 2540 D-97	TSS	39		mg/L	P321319	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P321426	
1877258	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P321261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P321033	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P321081	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P321068	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P320953	
1877262	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P320859	

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: 03/01/2017 09:40

Field ID: G4NE0281 03012017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877255	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P320870	
	EPA 300.0 Rev. 2.1	Sulfate	2.5E+03		mg SO4/L	P322124	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P321322	
	SM 2540 D-97	TSS	28	A	mg/L	P321559	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P321325	
1877259	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P321293	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P321034	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321257	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P321172	

Field ID: G4NE0281 03012017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877259	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P320955	
1877263	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320862	

Sample Location: FIELD BLANK

Collection Date/Time: 03/01/2017 09:20

Field ID: 12192016

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877256	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P320870	
	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P322124	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P321422	
	SM 2540 D-97	TSS	2	U	mg/L	P321319	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P321426	
1877260	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P320985	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321081	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P321068	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P320953	
1877264	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320859	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 03/14/2017.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P320870

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322124

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321261

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321293

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320985

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321034

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321257

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321068

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321172

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320859

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320862

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: P321322

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P321422

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P321319

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321559

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P321325

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P321426

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320953

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

Reference Method: SM 5310 B-00
Batch ID: P320955

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: P322124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321261

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: P321293

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320985

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321034

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321257

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: P321068

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321172

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320862

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P321322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P321422

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

Reference Method: SM 4500 F-C-97
Batch ID: P321325

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

Reference Method: SM 4500 F-C-97
Batch ID: P321426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320953

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P320955

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880009	Sulfate	97.6		P	90 - 110
1880022	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877239	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877892	Ammonia-N	100	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877240	Kjeldahl Nitrogen	105	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877510	Kjeldahl Nitrogen	94.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877259	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877215	NO2NO3-N	98.2	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877078	NO2NO3-N	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877307	Total-P	96.9	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877841	Total-P	97.0	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877310	O-Phosphate-P	94.1	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320862

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877263	O-Phosphate-P	96.2	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P321325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877747	Fluoride	96.2	97.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P321426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878119	Fluoride	104	105	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877214	Organic Carbon	96.6	98.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P320955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876949	Organic Carbon	90.6	85.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877235	Turbidity	4.88	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880022	Sulfate	0.862	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877239	Ammonia-N	0.642	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877892	Ammonia-N	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877240	Kjeldahl Nitrogen	3.60	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877510	Kjeldahl Nitrogen	7.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877259	Kjeldahl Nitrogen	0.181	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877215	NO2NO3-N	0.406	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877078	NO2NO3-N	1.41	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877307	Total-P	3.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877841	Total-P	0.594	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877310	O-Phosphate-P	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320862

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877263	O-Phosphate-P	3.77	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P321322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877747	Total Alkalinity	0.498	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P321422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878119	Total Alkalinity	1.47	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P321559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877255	TSS	1.44	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P321325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877747	Fluoride	0.953	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P321426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878119	Fluoride	0.476	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877214	Organic Carbon	0.985	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P320955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876949	Organic Carbon	5.13	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: A74855
Included Lab Sample IDs: 1877261, 1877262, 1877263, 1877264

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	96.5	P/P	90 - 110
O-Phosphate-P	98.4	98.4	P/P	90 - 110
O-Phosphate-P	99.2	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74856
Included Lab Sample IDs: 1877253, 1877254, 1877255, 1877256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A74891
Included Lab Sample IDs: 1877257, 1877258, 1877259, 1877260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.5	99.4	P/P	90 - 110
Organic Carbon	100	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74934

Included Lab Sample IDs: 1877257, 1877258, 1877260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74948

Included Lab Sample IDs: 1877260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74956

Included Lab Sample IDs: 1877257, 1877258, 1877259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	103	P/P	90 - 110
Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74983

Included Lab Sample IDs: 1877259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74986

Included Lab Sample IDs: 1877257, 1877258, 1877260

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74987

Included Lab Sample IDs: 1877260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74996

Included Lab Sample IDs: 1877257, 1877258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74997

Included Lab Sample IDs: 1877259

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74999

Included Lab Sample IDs: 1877259

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

Reference Method: SM 2320 B-97

Run ID: A75009

Included Lab Sample IDs: 1877255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75009

Included Lab Sample IDs: 1877255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.5	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75050

Included Lab Sample IDs: 1877253, 1877254, 1877256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75050

Included Lab Sample IDs: 1877253, 1877254, 1877256

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75326

Included Lab Sample IDs: 1877253, 1877254, 1877255, 1877256

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	96.1	93.7	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				4.88	
EPA 300.0 Rev. 2.1	Sulfate	97.3	97.6	99.3	0.862	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	100		0.642
	Ammonia-N	99.4	100	98.7		1.49

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	105	99.1		3.60
	Kjeldahl Nitrogen	105	94.2	103		7.05
	Kjeldahl Nitrogen	107	104	104		0.181
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	98.2	97.7		0.406
	NO ₂ NO ₃ -N	106	107	106		1.41
EPA 365.1 Rev. 2.0	Total-P	97.0	96.9	101		3.54
	Total-P	98.8	97.0	97.7		0.594
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	94.1	95.8		1.51
	O-Phosphate-P	99.8	96.2	99.9		3.77
SM 2320 B-97	Total Alkalinity	104			0.498	
	Total Alkalinity	103			1.47	
SM 2540 D-97	TSS				1.44	
SM 4500 F-C-97	Fluoride	96.4	96.2	97.6		0.953
	Fluoride	101	104	105		0.476
SM 5310 B-00	Organic Carbon	102	96.6	98.3		0.985
	Organic Carbon	99.0	90.6	85.5		5.13

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1877253, 1877254, 1877255, 1877256
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1877253, 1877254, 1877255, 1877256
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1877257, 1877258, 1877259, 1877260
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1877257, 1877258, 1877259, 1877260
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1877257, 1877258, 1877259, 1877260
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1877257, 1877258, 1877259, 1877260
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1877261, 1877262, 1877263, 1877264
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1877253, 1877254, 1877255, 1877256
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1877253, 1877254, 1877255, 1877256
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1877253, 1877254, 1877255, 1877256
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1877257, 1877258, 1877259, 1877260

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	03/02/2017			03/02/2017 15:50	Sima Feizi	1877253, 1877254, 1877255, 1877256
EPA 300.0 Rev. 2.1	03/02/2017			03/24/2017	Ping Hua	1877253, 1877254, 1877255, 1877256
EPA 350.1 Rev. 2.0	03/02/2017			03/08/2017	Sofia Elnemr	1877257, 1877258, 1877260
	03/02/2017			03/09/2017	Sofia Elnemr	1877259
EPA 351.2 Rev. 2.0	03/02/2017	03/06/2017	Adrian Shelby	03/07/2017	Joseph Suarez	1877260
	03/02/2017	03/07/2017	Adrian Shelby	03/08/2017	Joseph Suarez	1877257, 1877258, 1877259
EPA 353.2 Rev. 2.0	03/02/2017			03/07/2017	Beverly Y. Sanders	1877257, 1877258, 1877260
	03/02/2017			03/09/2017	Beverly Y. Sanders	1877259
EPA 365.1 Rev. 2.0	03/02/2017	03/07/2017	Adrian Shelby	03/08/2017	Lipi Saha	1877257, 1877258
	03/02/2017	03/07/2017	Adrian Shelby	03/09/2017	Lipi Saha	1877260
	03/02/2017	03/08/2017	Vijayalakshmi Reddy	03/09/2017	Lipi Saha	1877259
EPA 365.1 Rev. 2.0 dissolved	03/02/2017			03/02/2017 14:57	Julia Storbeck	1877263
	03/02/2017			03/02/2017 15:24	Julia Storbeck	1877261
	03/02/2017			03/02/2017 15:36	Julia Storbeck	1877264
	03/02/2017			03/02/2017 15:40	Julia Storbeck	1877262
SM 2320 B-97	03/02/2017			03/10/2017	Dale L. Simmons	1877255
	03/02/2017			03/11/2017	Dale L. Simmons	1877253, 1877254, 1877256
SM 2540 D-97	03/02/2017			03/06/2017	Sima Feizi	1877253, 1877254, 1877256
	03/02/2017			03/07/2017	Sima Feizi	1877255
SM 4500 F-C-97	03/02/2017			03/10/2017	Dale L. Simmons	1877255
	03/02/2017			03/11/2017	Dale L. Simmons	1877253, 1877254, 1877256
SM 5310 B-00	03/02/2017			03/03/2017	Julie Michelle Frank	1877257, 1877258, 1877260
	03/02/2017			03/04/2017	Julie Michelle Frank	1877259