

Chemical Analysis Report

SE-DIST-2016-11-23-01

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

Event Description: **Key Largo week of 10/24**
Request ID: **RQ-2016-10-24-09**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-DEC-2016 10:25

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: LONG SOUND-WESTERN BAY

Collection Date/Time: 11/22/2016 11:00

Field ID: G5SE0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852233	EPA 180.1 Rev. 2.0	Turbidity	3.6	A	NTU	P315715	
	EPA 300.0 Rev. 2.1	Chloride	1.5E+04		mg Cl/L	P316119	
	SM 2320 B-97	Total Alkalinity	159		mg CaCO3/L	P315886	
	SM 2540 D-97	TSS	4	I	mg/L	P316224	
	SM 4500 F-C-97	Fluoride	0.89		mg F/L	P315888	
1852238	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P315959	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P316292	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P315917	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P316260	
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P315822	
1852243	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315703	

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: BARNES SOUND SOUTHEAST OF MAIN KEY

Collection Date/Time: 11/22/2016 09:30

Field ID: G5SE0053

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852234	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P315715	
	EPA 300.0 Rev. 2.1	Chloride	1.7E+04		mg Cl/L	P316119	
	SM 2320 B-97	Total Alkalinity	147		mg CaCO3/L	P315886	
	SM 2540 D-97	TSS	3	U	mg/L	P316224	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P315888	
1852239	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P315959	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P316289	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.053		mg N/L	P315917	
	EPA 365.1 Rev. 2.0	Total-P	0.004	U	mg P/L	P316084	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P315822	
1852244	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315703	

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: MANATEE BAY @ CENTER

Collection Date/Time: 11/22/2016 09:50

Field ID: G5SE0052

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852235	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P315715	
	EPA 300.0 Rev. 2.1	Chloride	1.5E+04		mg Cl/L	P316119	
	SM 2320 B-97	Total Alkalinity	168	A	mg CaCO3/L	P315886	
	SM 2540 D-97	TSS	3	I	mg/L	P316224	
	SM 4500 F-C-97	Fluoride	0.92		mg F/L	P315888	
1852240	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P315959	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P316289	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P315917	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P316084	

Field ID: G5SE0052

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852240	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P315822	
1852245	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315703	

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: BLACKWATER SOUND-NORTHERN BAY

Collection Date/Time: 11/22/2016 10:20

Field ID: G5SE0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852236	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P315715	
	EPA 300.0 Rev. 2.1	Chloride	1.7E+04		mg Cl/L	P316119	
	SM 2320 B-97	Total Alkalinity	145		mg CaCO3/L	P315886	
	SM 2540 D-97	TSS	3	U	mg/L	P316224	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P315888	
1852241	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P315959	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P316289	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P316216	
	EPA 365.1 Rev. 2.0	Total-P	0.004	U	mg P/L	P316084	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P315822	
1852246	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315703	

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: LITTLE BLACKWATER SOUND @ CENTER

Collection Date/Time: 11/22/2016 10:40

Field ID: G5SE0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1852237	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P315715	
	EPA 300.0 Rev. 2.1	Chloride	1.6E+04		mg Cl/L	P316119	
	SM 2320 B-97	Total Alkalinity	158		mg CaCO3/L	P315886	
	SM 2540 D-97	TSS	4	I	mg/L	P316224	
	SM 4500 F-C-97	Fluoride	0.94		mg F/L	P315888	
1852242	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P315959	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P316292	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P316216	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P316084	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P315822	
1852247	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315703	

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315715

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316119

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315959

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316289

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316292

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316216

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316084

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

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 dissolved
Batch ID: P315703

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

Reference Method: SM 2320 B-97
Batch ID: P315886

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

Reference Method: SM 2540 D-97
Batch ID: P316224

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P315888

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P315822

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: P316119

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316289

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316292

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316292

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: P315917

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316216

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: P316084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315703

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

Reference Method: SM 2320 B-97
Batch ID: P315886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P315888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P315822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852258	Chloride	101		P	90 - 110
1852259	Chloride	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315959

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852239	Ammonia-N	95.7	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852292	Kjeldahl Nitrogen	97.1	95.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852331	Kjeldahl Nitrogen	97.1	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851481	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851929	NO2NO3-N	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852290	Total-P	102	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852238	Total-P	103	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852243	O-Phosphate-P	96.8	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P315888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852235	Fluoride	96.4	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P315822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1850377	Organic Carbon	95.5	96.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852233	Turbidity	0.825	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852258	Chloride	0.841	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852239	Ammonia-N	2.94	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852292	Kjeldahl Nitrogen	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852331	Kjeldahl Nitrogen	2.98	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851481	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851929	NO2NO3-N	0.935	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852290	Total-P	5.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852238	Total-P	4.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852243	O-Phosphate-P	1.54	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P315886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852235	Total Alkalinity	0.690	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P315888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852235	Fluoride	0.986	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P315822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1850377	Organic Carbon	0.741	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 365.1 Rev. 2.0 dissolved

Run ID: A72994

Included Lab Sample IDs: 1852243, 1852244, 1852245, 1852246, 1852247

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	98.8	P/P	90 - 110
O-Phosphate-P	97.5	97.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72997

Included Lab Sample IDs: 1852233, 1852234, 1852235, 1852236, 1852237

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

Reference Method: SM 5310 B-00

Run ID: A73041

Included Lab Sample IDs: 1852238, 1852239, 1852240, 1852241, 1852242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	96.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A73065

Included Lab Sample IDs: 1852233, 1852234, 1852235, 1852236, 1852237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73065

Included Lab Sample IDs: 1852233, 1852234, 1852235, 1852236, 1852237

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.4	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73081

Included Lab Sample IDs: 1852238, 1852239, 1852240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	95.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73098

Included Lab Sample IDs: 1852238, 1852239, 1852240, 1852241, 1852242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73098

Included Lab Sample IDs: 1852238, 1852239, 1852240, 1852241, 1852242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73131

Included Lab Sample IDs: 1852233, 1852234, 1852235, 1852236, 1852237

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73187

Included Lab Sample IDs: 1852239, 1852240, 1852241, 1852242

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73189

Included Lab Sample IDs: 1852241, 1852242

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73226

Included Lab Sample IDs: 1852238

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73249

Included Lab Sample IDs: 1852239, 1852240, 1852241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73260

Included Lab Sample IDs: 1852238, 1852242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	98.3	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	MS
EPA 180.1 Rev. 2.0	Turbidity				0.825	
EPA 300.0 Rev. 2.1	Chloride	101	101	102	0.841	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	95.7	101		2.94
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	97.1	95.7		1.19
	Kjeldahl Nitrogen	101	97.1	101		2.98
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	102		0.0
	NO2NO3-N	104	108	106		0.935
EPA 365.1 Rev. 2.0	Total-P	109	102	96.1		5.56
	Total-P	102	103	97.9		4.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.8	98.3		1.54
SM 2320 B-97	Total Alkalinity	98.4			0.690	
SM 4500 F-C-97	Fluoride	96.5	96.4	97.8		0.986
SM 5310 B-00	Organic Carbon	98.8	95.5	96.3		0.741

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1852233, 1852234, 1852235, 1852236, 1852237
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1852233, 1852234, 1852235, 1852236, 1852237
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1852238, 1852239, 1852240, 1852241, 1852242
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1852238, 1852239, 1852240, 1852241, 1852242
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1852238, 1852239, 1852240, 1852241, 1852242
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1852238, 1852239, 1852240, 1852241, 1852242
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1852243, 1852244, 1852245, 1852246, 1852247
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1852233, 1852234, 1852235, 1852236, 1852237
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1852233, 1852234, 1852235, 1852236, 1852237
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1852233, 1852234, 1852235, 1852236, 1852237
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1852238, 1852239, 1852240, 1852241, 1852242

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	11/23/2016			11/23/2016 14:00	Sima Feizi	1852233, 1852234, 1852235, 1852236, 1852237
EPA 300.0 Rev. 2.1	11/23/2016			12/03/2016	Ping Hua	1852233, 1852234, 1852235, 1852236, 1852237
EPA 350.1 Rev. 2.0	11/23/2016			11/30/2016	Sofia Elnemr	1852238, 1852239, 1852240, 1852241, 1852242
EPA 351.2 Rev. 2.0	11/23/2016	12/07/2016	Adrian Shelby	12/08/2016	Joseph Suarez	1852238, 1852239, 1852240, 1852241, 1852242
EPA 353.2 Rev. 2.0	11/23/2016			11/30/2016	Beverly Y. Sanders	1852238, 1852239, 1852240
	11/23/2016			12/06/2016	Beverly Y. Sanders	1852241, 1852242
EPA 365.1 Rev. 2.0	11/23/2016	12/02/2016	Adrian Shelby	12/05/2016	Lipi Saha	1852239, 1852240, 1852241, 1852242
	11/23/2016	12/06/2016	Vijayalakshmi Reddy	12/07/2016	Lipi Saha	1852238
EPA 365.1 Rev. 2.0 dissolved	11/23/2016			11/23/2016 13:55	Julia Storbeck	1852243
	11/23/2016			11/23/2016 14:14	Julia Storbeck	1852244
	11/23/2016			11/23/2016 14:15	Julia Storbeck	1852245
	11/23/2016			11/23/2016 14:16	Julia Storbeck	1852246
	11/23/2016			11/23/2016 14:17	Julia Storbeck	1852247
SM 2320 B-97	11/23/2016			11/29/2016	Dale L. Simmons	1852233, 1852234, 1852235, 1852236, 1852237
SM 2540 D-97	11/23/2016			11/26/2016	Yijie Li	1852233, 1852234, 1852235, 1852236, 1852237
SM 4500 F-C-97	11/23/2016			11/29/2016	Dale L. Simmons	1852233, 1852234, 1852235, 1852236, 1852237
SM 5310 B-00	11/23/2016			11/29/2016	Julie Michelle Frank	1852238, 1852239, 1852240, 1852241, 1852242