

Chemical Analysis Report

SO-DIST-2017-04-18-01

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

Event Description: **SMP: Wilderness WW**
Request ID: **RQ-2017-04-17-07**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-MAY-2017 12:24

A handwritten signature in black ink, appearing to read "Liang Lin", is written over a light gray, textured 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: ENRE9 CHATHAM RIVER

Collection Date/Time: 04/17/2017 12:08

Field ID: G5SD041717-5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889698	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P323594	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P324010	
	SM 2540 D-97	TSS	4	I	mg/L	P324586	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P324406	
1889705	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P323676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P323722	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P323812	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P323649	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P323622	
1889712	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323585	

Sample Location: ENER11 AT HUSTON BAY

Collection Date/Time: 04/17/2017 11:11

Field ID: G5SD041717-6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889699	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P323594	
	SM 2320 B-97	Total Alkalinity	153		mg CaCO3/L	P324010	
	SM 2540 D-97	TSS	6	I	mg/L	P324586	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P324406	
1889706	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P323676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P323722	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	U	mg N/L	P324053	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P323649	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P323622	
1889713	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323585	

Ref. Method and Comment:
 EPA 353.2 Rev. 2.0: NO2NO3-N: The MDL was elevated due to sample matrix interference.

Sample Location: ENRE9 AT HUSTON RIVER

Collection Date/Time: 04/17/2017 12:30

Field ID: G5SD041717-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889700	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P323594	
	SM 2320 B-97	Total Alkalinity	153		mg CaCO3/L	P324010	
	SM 2540 D-97	TSS	6	I	mg/L	P324586	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P324406	
1889707	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P323676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P323722	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P324047	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P323649	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P323622	
1889714	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P323585	

Sample Location: COPELAND AVE. @ BRIDGE 030161

Collection Date/Time: 04/17/2017 13:50

Field ID: G1SD041717-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889701	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P323594	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P324010	
	SM 2540 D-97	TSS	23		mg/L	P324586	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P324406	
1889708	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P323676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P323722	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324047	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P323649	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P323622	
1889715	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P323585	

Sample Location: ENRE11 AT CANNON BAY

Collection Date/Time: 04/17/2017 11:46

Field ID: G5SD041717-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889702	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P323594	
	SM 2320 B-97	Total Alkalinity	187		mg CaCO3/L	P324010	
	SM 2540 D-97	TSS	10		mg/L	P324586	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P324406	
1889709	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P323676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P323722	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324047	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P323649	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P323622	
1889716	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323585	

Sample Location: ENRE11 AT CHEVELIER BAY

Collection Date/Time: 04/17/2017 11:30

Field ID: G5SD041717-4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889703	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P323594	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P324010	
	SM 2540 D-97	TSS	4	IA	mg/L	P324587	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P324406	
1889710	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P323676	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P323954	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324047	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P323649	
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P323622	
1889717	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P323585	

Ref. Method and Comment:

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

Sample Location: FIELD BLANK

Collection Date/Time: 04/17/2017 14:00

Field ID: G1SDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1889704	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P323594	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P324162	
	SM 2540 D-97	TSS	2	U	mg/L	P324585	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P324682	
1889711	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P323675	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P323685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P323730	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P323646	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P323620	
1889718	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323584	

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: P323594

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P323675

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P323676

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P323685

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P323722

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P323954

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323730

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323812

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324047

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324053

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323646

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323649

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323584

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323585

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

Reference Method: SM 2320 B-97
Batch ID: P324010

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P324162

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

Reference Method: SM 2540 D-97
Batch ID: P324585

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324586

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324587

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P324406

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P324682

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P323620

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

Reference Method: SM 5310 B-00
Batch ID: P323622

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: P323675

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323675

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323676

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323685

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: P323722

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: P323954

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: P323730

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: P323812

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	108		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323646

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323649

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323584

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323585

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

Reference Method: SM 2320 B-97
Batch ID: P324010

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

Reference Method: SM 2320 B-97
Batch ID: P324162

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

Reference Method: SM 4500 F-C-97
Batch ID: P324406

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P324682

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

Reference Method: SM 5310 B-00
Batch ID: P323620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P323622

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P323675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889585	Ammonia-N	105	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P323676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889705	Ammonia-N	105	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P323685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889734	Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P323722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889706	Kjeldahl Nitrogen	95.5	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P323954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890106	Kjeldahl Nitrogen	95.0	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P323730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889690	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P323812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889567	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P324047

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890572	NO2NO3-N	103	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889706	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889865	Total-P	107	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889710	Total-P	96.2	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889531	O-Phosphate-P	98.0	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889537	O-Phosphate-P	97.1	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P324406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889318	Fluoride	103	102	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P324682

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890031	Fluoride	97.0	94.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P323620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889481	Organic Carbon	100	97.6	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P323622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1889536	Organic Carbon	94.5	92.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889687	Turbidity	3.71	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889585	Ammonia-N	1.87	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889705	Ammonia-N	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889734	Kjeldahl Nitrogen	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889706	Kjeldahl Nitrogen	0.370	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890106	Kjeldahl Nitrogen	0.402	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889690	NO2NO3-N	0.928	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889567	NO2NO3-N	0.381	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890572	NO2NO3-N	2.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889706	NO2NO3-N	0.464	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889865	Total-P	2.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889710	Total-P	0.280	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889531	O-Phosphate-P	0.129	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889537	O-Phosphate-P	0.458	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P324010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888852	Total Alkalinity	1.11	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
 Batch ID: P324162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890031	Total Alkalinity	0.0193	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
 Batch ID: P324586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889088	TSS	2.67	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P324406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889318	Fluoride	0.464	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
 Batch ID: P324682

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890031	Fluoride	0.461	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P323620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889481	Organic Carbon	1.57	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P323622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889536	Organic Carbon	1.91	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75846

Included Lab Sample IDs: 1889712, 1889713, 1889714, 1889715, 1889716, 1889717, 1889718

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.0	P/P	90 - 110
O-Phosphate-P	98.8	98.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75851

Included Lab Sample IDs: 1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A75860

Included Lab Sample IDs: 1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	95.7	P/P	90 - 110
Organic Carbon	96.4	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75888

Included Lab Sample IDs: 1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75902

Included Lab Sample IDs: 1889711

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75905

Included Lab Sample IDs: 1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.2	P/P	90 - 110
Total-P	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75926

Included Lab Sample IDs: 1889705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75928

Included Lab Sample IDs: 1889705, 1889706, 1889707, 1889708, 1889709, 1889711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	103	P/P	90 - 110
Kjeldahl Nitrogen	102	100	P/P	90 - 110
Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75995

Included Lab Sample IDs: 1889698, 1889699, 1889700, 1889701, 1889702, 1889703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75996

Included Lab Sample IDs: 1889710

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76006

Included Lab Sample IDs: 1889706, 1889707, 1889708, 1889709, 1889710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	104	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76045

Included Lab Sample IDs: 1889704

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

Reference Method: SM 4500 F-C-97

Run ID: A76126

Included Lab Sample IDs: 1889698, 1889699, 1889700, 1889701, 1889702, 1889703

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

Reference Method: SM 4500 F-C-97

Run ID: A76201

Included Lab Sample IDs: 1889704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	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	MS
EPA 180.1 Rev. 2.0	Turbidity				3.71	
EPA 350.1 Rev. 2.0	Ammonia-N	109	105	103		1.87
	Ammonia-N	108	105	107		1.70
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	106	104		1.01
	Kjeldahl Nitrogen	102	95.5	95.0		0.370
	Kjeldahl Nitrogen	101	95.0	95.4		0.402
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100			0.928
	NO2NO3-N	101	102	102		0.381
	NO2NO3-N	103	103	106		2.33
	NO2NO3-N	108	108	108		0.464
EPA 365.1 Rev. 2.0	Total-P	103	107	105		2.49
	Total-P	103	96.2	95.9		0.280
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	98.0	97.7		0.129
	O-Phosphate-P	99.1	97.1	96.6		0.458
SM 2320 B-97	Total Alkalinity	102			1.11	
	Total Alkalinity	102			0.0193	
SM 2540 D-97	TSS				2.67	
SM 4500 F-C-97	Fluoride	97.7	103	102		0.464
	Fluoride	98.1	97.0	94.7		0.461
SM 5310 B-00	Organic Carbon	97.4	100	97.6		1.57
	Organic Carbon	95.8	94.5	92.6		1.91

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1889712, 1889713, 1889714, 1889715, 1889716, 1889717, 1889718
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711

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	04/18/2017			04/18/2017 15:15	Sima Feizi	1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704
EPA 350.1 Rev. 2.0	04/18/2017			04/19/2017	Julie Michelle Frank	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711
EPA 351.2 Rev. 2.0	04/18/2017	04/20/2017	Adrian Shelby	04/21/2017	Joseph Suarez	1889705, 1889706, 1889707, 1889708, 1889709, 1889711
	04/18/2017	04/25/2017	Adrian Shelby	04/26/2017	Joseph Suarez	1889710
EPA 353.2 Rev. 2.0	04/18/2017			04/20/2017	Beverly Y. Sanders	1889711
	04/18/2017			04/21/2017	Beverly Y. Sanders	1889705
	04/18/2017			04/26/2017	Beverly Y. Sanders	1889706, 1889707, 1889708, 1889709, 1889710
EPA 365.1 Rev. 2.0	04/18/2017	04/19/2017	Vijayalakshmi Reddy	04/20/2017	Lipi Saha	1889705, 1889706, 1889707, 1889708, 1889709, 1889710, 1889711
EPA 365.1 Rev. 2.0 dissolved	04/18/2017			04/18/2017 13:47	Lipi Saha	1889718
	04/18/2017			04/18/2017 13:48	Lipi Saha	1889712
	04/18/2017			04/18/2017 13:49	Lipi Saha	1889713
	04/18/2017			04/18/2017 13:50	Lipi Saha	1889714
	04/18/2017			04/18/2017 13:55	Lipi Saha	1889715
	04/18/2017			04/18/2017 13:56	Lipi Saha	1889716
	04/18/2017			04/18/2017 13:57	Lipi Saha	1889717
SM 2320 B-97	04/18/2017			04/26/2017	Dale L. Simmons	1889698, 1889699, 1889700, 1889701, 1889702, 1889703
	04/18/2017			04/27/2017	Dale L. Simmons	1889704
SM 2540 D-97	04/18/2017			04/19/2017	Yijie Li	1889698, 1889699, 1889700, 1889701, 1889702, 1889703, 1889704
SM 4500 F-C-97	04/18/2017			05/02/2017	Dale L. Simmons	1889698, 1889699, 1889700, 1889701, 1889702, 1889703
	04/18/2017			05/03/2017	Dale L. Simmons	1889704
SM 5310 B-00	04/18/2017			04/18/2017	Julie Michelle Frank	1889711
	04/18/2017			04/19/2017	Julie Michelle Frank	1889705, 1889706, 1889707, 1889708, 1889709, 1889710