

Chemical Analysis Report

SE-DIST-2017-06-16-01

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

Event Description: **SMP-Keys Run**
Request ID: **RQ-2017-05-08-14**
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: Matthew Sewell

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 10-JUL-2017 14:46



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 groups are included in this report: Metals and 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: BARNES SOUND

Collection Date/Time: 06/15/2017 12:40

Field ID: G5SE0053

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906831	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P327040	
	SM 2320 B-97	Total Alkalinity	130		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	3	U	mg/L	P327530	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P327379	
1906836	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P327074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P327203	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P327049	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P327589	
1906841	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327006	

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: ROUTE 1 KEY A (PIRATE HAT MARINA)

Collection Date/Time: 06/15/2017 12:55

Field ID: G4SE0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906846	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P327041	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	3	IA	mg/L	P327531	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P327379	
1906847	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P327075	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P327204	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P327049	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P327589	
1906848	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327006	
1906858	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.0	U	ug/L	P327055	
		Cadmium	0.20	U	ug/L	P327055	
		Chromium	1.2	U	ug/L	P327055	
		Copper	2.0	U	ug/L	P327055	
		Lead	0.80	U	ug/L	P327055	
		Nickel	1.0	U	ug/L	P327055	
		Silver	0.10	U	ug/L	P327055	
		Zinc	20	U	ug/L	P327055	

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: ROUTE 1 KEY A (PIRATE HAT MARINA)

Collection Date/Time: 06/15/2017 13:00

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906849	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P327041	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327510	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906849	SM 2540 D-97	TSS	2	U	mg/L	P327528	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327512	
1906850	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P327340	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327222	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P327051	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P327446	
1906851	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327001	
1906859	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P327137	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P327137	
		Cadmium	0.020	U	ug/L	P327137	
		Chromium	0.40	U	ug/L	P327137	
		Copper	0.20	U	ug/L	P327137	
		Lead	0.050	U	ug/L	P327137	
		Nickel	0.20	U	ug/L	P327137	
		Silver	0.010	U	ug/L	P327137	
		Zinc	1.0	U	ug/L	P327137	

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: 06/15/2017 13:10

Field ID: G5SE0052

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906832	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P327041	
	SM 2320 B-97	Total Alkalinity	165		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	4	I	mg/L	P327530	
	SM 4500 F-C-97	Fluoride	0.88		mg F/L	P327379	
1906837	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P327074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P327203	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P327049	
	SM 5310 B-00	Organic Carbon	8.1		mg C/L	P327589	
1906842	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P327006	

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

Collection Date/Time: 06/15/2017 13:30

Field ID: G5SE0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906833	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P327041	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	3	U	mg/L	P327530	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P327379	
1906838	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P327175	

Field ID: G5SE0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906838	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P327074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327203	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P327049	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P327589	
1906843	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327006	

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

Collection Date/Time: 06/15/2017 13:45

Field ID: G5SE0055

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906834	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P327041	
	SM 2320 B-97	Total Alkalinity	134		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	3	U	mg/L	P327530	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327379	
1906839	EPA 350.1 Rev. 2.0	Ammonia-N	0.080		mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P327074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P327203	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P327049	
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P327589	
1906844	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327006	

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: LONG SOUND

Collection Date/Time: 06/15/2017 14:00

Field ID: G5SE0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906835	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P327041	
	SM 2320 B-97	Total Alkalinity	159		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	3	U	mg/L	P327530	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P327379	
1906840	EPA 350.1 Rev. 2.0	Ammonia-N	0.075		mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P327185	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P327203	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P327049	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P327589	
1906845	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327006	

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: P327040

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327041

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327055

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327137

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327055

Component	Result	Code	Units
Arsenic	0.25	U	ug/L
Cadmium	0.050	U	ug/L
Chromium	0.30	U	ug/L
Copper	0.50	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.25	U	ug/L
Silver	0.025	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327137

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.69	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

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: P327074

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327075

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327340

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327203

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327222

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327049

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327051

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: P327001

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327006

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

Reference Method: SM 2320 B-97
Batch ID: P327372

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

Reference Method: SM 2320 B-97
Batch ID: P327510

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

Reference Method: SM 2540 D-97
Batch ID: P327528

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327530

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327531

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P327446

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

Reference Method: SM 5310 B-00
Batch ID: P327589

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	98.4		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	109		P	85 - 115
Chromium	106		P	85 - 115
Copper	105		P	85 - 115
Lead	104		P	85 - 115
Nickel	106		P	85 - 115
Silver	102		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327137

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.5		P	85 - 115
Cadmium	99.7		P	85 - 115
Chromium	100		P	85 - 115
Copper	95.6		P	85 - 115
Lead	99.1		P	85 - 115
Nickel	98.1		P	85 - 115
Silver	99.3		P	85 - 115
Zinc	97.3		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327074

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327075

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327340

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327203

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327222

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: P327049

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327051

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327001

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327006

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

Reference Method: SM 2320 B-97
Batch ID: P327372

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

Reference Method: SM 2320 B-97
Batch ID: P327510

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

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327589

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906073	Iron	97.9	98.1	P/P	70 - 130
1906635	Iron	91.4		P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906464	Iron	104		P	80 - 120
1906758	Iron	103	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906073	Arsenic	98.8	102	P/P	70 - 130
1906073	Cadmium	91.9	96.8	P/P	70 - 130
1906073	Chromium	98.5	98.2	P/P	70 - 130
1906073	Copper	98.7	104	P/P	70 - 130
1906073	Lead	100	105	P/P	70 - 130
1906073	Nickel	99.5	100	P/P	70 - 130
1906073	Silver	94.0	99.6	P/P	70 - 130
1906073	Zinc	89.0	97.2	P/P	70 - 130
1906635	Arsenic	97.5		P	70 - 130
1906635	Cadmium	100		P	70 - 130
1906635	Chromium	101		P	70 - 130
1906635	Copper	91.5		P	70 - 130
1906635	Lead	105		P	70 - 130
1906635	Nickel	93.3		P	70 - 130
1906635	Silver	95.9		P	70 - 130
1906635	Zinc	86.4		P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906464	Arsenic	102		P	80 - 120
1906464	Cadmium	106		P	80 - 120
1906464	Chromium	100		P	80 - 120
1906464	Copper	96.2		P	80 - 120
1906464	Lead	101		P	80 - 120
1906464	Nickel	98.3		P	80 - 120
1906464	Silver	102		P	80 - 120
1906464	Zinc	99.8		P	80 - 120
1906758	Arsenic	102	103	P/P	80 - 120
1906758	Cadmium	104	106	P/P	80 - 120
1906758	Chromium	98.5	99.4	P/P	80 - 120
1906758	Copper	96.2	96.6	P/P	80 - 120
1906758	Lead	100	101	P/P	80 - 120
1906758	Nickel	96.9	98.2	P/P	80 - 120
1906758	Silver	101	103	P/P	80 - 120
1906758	Zinc	99.4	101	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906792	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906792	Kjeldahl Nitrogen	95.6	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906891	Kjeldahl Nitrogen	104	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907024	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906966	Kjeldahl Nitrogen	100	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906793	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906847	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906904	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906837	Total-P	97.6	90.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906744	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906749	O-Phosphate-P	92.8	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906841	O-Phosphate-P	95.4	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907018	Fluoride	96.7	99.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908499	Fluoride	98.8	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P327446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906491	Organic Carbon	95.5	96.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327589

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906551	Organic Carbon	94.7	93.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906741	Turbidity	3.06	Sample	P	0 - 15

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906834	Turbidity	17.9	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906073	Iron	0.270	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906758	Iron	1.39	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906073	Arsenic	2.79	Spike	P	0 - 20
1906073	Cadmium	5.18	Spike	P	0 - 20
1906073	Chromium	0.353	Spike	P	0 - 20
1906073	Copper	4.85	Spike	P	0 - 20
1906073	Lead	4.62	Spike	P	0 - 20
1906073	Nickel	0.519	Spike	P	0 - 20
1906073	Silver	5.72	Spike	P	0 - 20
1906073	Zinc	8.72	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906758	Arsenic	0.496	Spike	P	0 - 20
1906758	Cadmium	1.95	Spike	P	0 - 20
1906758	Chromium	0.808	Spike	P	0 - 20
1906758	Copper	0.461	Spike	P	0 - 20
1906758	Lead	0.227	Spike	P	0 - 20
1906758	Nickel	1.40	Spike	P	0 - 20
1906758	Silver	1.49	Spike	P	0 - 20
1906758	Zinc	1.37	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906792	Ammonia-N	1.75	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906792	Kjeldahl Nitrogen	7.83	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906891	Kjeldahl Nitrogen	3.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907024	Kjeldahl Nitrogen	1.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906966	Kjeldahl Nitrogen	1.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906793	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906847	NO2NO3-N	1.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906904	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906837	Total-P	7.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906744	Total-P	0.949	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906749	O-Phosphate-P	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906841	O-Phosphate-P	1.04	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P327372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907018	Total Alkalinity	0.0601	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P327510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908499	Total Alkalinity	0.620	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907018	Fluoride	2.44	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P327512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908499	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906491	Organic Carbon	0.939	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P327589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906551	Organic Carbon	0.764	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: A77152
Included Lab Sample IDs: 1906841, 1906842, 1906843, 1906844, 1906845, 1906848, 1906851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	100	P/P	90 - 110
O-Phosphate-P	99.3	99.2	P/P	90 - 110
O-Phosphate-P	99.6	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77166
Included Lab Sample IDs: 1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A77194
Included Lab Sample IDs: 1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.8	P/P	90 - 110
Total-P	97.8	97.8	P/P	90 - 110
Total-P	97.8	98.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A77217
Included Lab Sample IDs: 1906858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	96.1	94.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77219
Included Lab Sample IDs: 1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77224

Included Lab Sample IDs: 1906836, 1906837, 1906838, 1906839, 1906840, 1906847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	99.0	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77227

Included Lab Sample IDs: 1906850

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77234

Included Lab Sample IDs: 1906836, 1906837, 1906838, 1906839

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77248

Included Lab Sample IDs: 1906847

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A77254

Included Lab Sample IDs: 1906859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	102	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77287

Included Lab Sample IDs: 1906840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	94.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77291

Included Lab Sample IDs: 1906831, 1906832, 1906833, 1906834, 1906835, 1906846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77291

Included Lab Sample IDs: 1906831, 1906832, 1906833, 1906834, 1906835, 1906846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A77291

Included Lab Sample IDs: 1906831, 1906832, 1906833, 1906834, 1906835, 1906846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.1	98.1	P/P	90 - 110
Fluoride	98.1	96.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77330

Included Lab Sample IDs: 1906850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.9	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77351

Included Lab Sample IDs: 1906850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77355

Included Lab Sample IDs: 1906849

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

Reference Method: SM 4500 F-C-97

Run ID: A77355

Included Lab Sample IDs: 1906849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.1	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77379

Included Lab Sample IDs: 1906836, 1906837, 1906838, 1906839, 1906840, 1906847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.7	93.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77408

Included Lab Sample IDs: 1906859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	98.4	P/P	90 - 110
Cadmium	99.7	100	P/P	90 - 110
Chromium	97.6	101	P/P	90 - 110
Copper	99.6	98.1	P/P	90 - 110
Lead	99.6	99.1	P/P	90 - 110
Nickel	99.4	97.6	P/P	90 - 110
Silver	92.9	92.9	P/P	90 - 110
Zinc	101	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77444

Included Lab Sample IDs: 1906858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.9	95.3	P/P	90 - 110
Cadmium	99.6	98.7	P/P	90 - 110
Chromium	102	99.7	P/P	90 - 110
Copper	99.6	98.1	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Nickel	99.2	98.9	P/P	90 - 110
Silver	98.8	97.6	P/P	90 - 110
Zinc	99.2	96.8	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						3.06	RSD
	Turbidity						17.9	
EPA 200.7 Rev. 4.4	Iron	98.4	97.9	98.1	91.4			0.270
	Iron	105	104	103	105			1.39
EPA 200.8 Rev. 5.4	Arsenic	102	98.8	102	97.5			2.79
	Arsenic	98.5	102	102	103			0.496
	Cadmium	109	91.9	96.8	100			5.18
	Cadmium	99.7	106	104	106			1.95
	Chromium	106	98.5	98.2	101			0.353
	Chromium	100	100	98.5	99.4			0.808
	Copper	105	98.7	104	91.5			4.85
	Copper	95.6	96.2	96.2	96.6			0.461
	Lead	104	100	105	105			4.62
	Lead	99.1	101	100	101			0.227
	Nickel	106	99.5	100	93.3			0.519
	Nickel	98.1	98.3	96.9	98.2			1.40
	Silver	102	94.0	99.6	95.9			5.72
	Silver	99.3	102	101	103			1.49
	Zinc	103	89.0	97.2	86.4			8.72
	Zinc	97.3	99.8	99.4	101			1.37
EPA 350.1 Rev. 2.0	Ammonia-N	105	104	102				1.75
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.2	95.6	104				7.83
	Kjeldahl Nitrogen	101	104	109				3.76
	Kjeldahl Nitrogen	101	99.0	101				1.84
	Kjeldahl Nitrogen	102	100	98.0				1.51
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103				0.0
	NO2NO3-N	102	102	104				1.38
	NO2NO3-N	104	103	104				1.45
EPA 365.1 Rev. 2.0	Total-P	101	97.6	90.6				7.39
	Total-P	99.0	100	101				0.949
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1	92.8	94.9				1.56
	O-Phosphate-P	97.6	95.4	96.4				1.04

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 2320 B-97	Total Alkalinity	104			0.0601	
	Total Alkalinity	103			0.620	
SM 4500 F-C-97	Fluoride	94.7	96.7 99.8			2.44
	Fluoride	93.5	98.8 98.8			0.0
SM 5310 B-00	Organic Carbon	97.0	95.5 96.4			0.939
	Organic Carbon	92.1	94.7 93.9			0.764

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1906858, 1906859
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1906858, 1906859
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1906841, 1906842, 1906843, 1906844, 1906845, 1906848, 1906851
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850

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	06/16/2017			06/16/2017 16:39	Blanca Fach	1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849
EPA 200.7 Rev. 4.4	06/16/2017	06/19/2017	Elliott D. Healy	06/20/2017	Betina Topolski	1906858
	06/16/2017	06/20/2017	Elliott D. Healy	06/21/2017	Betina Topolski	1906859
EPA 200.8 Rev. 5.4	06/16/2017	06/19/2017	Elliott D. Healy	06/29/2017	Robert K Palmer	1906858
	06/16/2017	06/20/2017	Elliott D. Healy	06/28/2017	Robert K Palmer	1906859
EPA 350.1 Rev. 2.0	06/16/2017			06/20/2017	Sofia Elnemr	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850
EPA 351.2 Rev. 2.0	06/16/2017	06/20/2017	Adrian Shelby	06/21/2017	Joseph Suarez	1906836, 1906837, 1906838, 1906839, 1906847
	06/16/2017	06/21/2017	Adrian Shelby	06/22/2017	Tanya Welborn	1906840
	06/16/2017	06/23/2017	Adrian Shelby	06/26/2017	Joseph Suarez	1906850
EPA 353.2 Rev. 2.0	06/16/2017			06/20/2017	Beverly Y. Sanders	1906836, 1906837, 1906838, 1906839, 1906840, 1906847
	06/16/2017			06/21/2017	Beverly Y. Sanders	1906850
EPA 365.1 Rev. 2.0	06/16/2017	06/19/2017	Vijayalakshmi Reddy	06/20/2017	Lipi Saha	1906836, 1906837, 1906838, 1906839, 1906840, 1906847, 1906850
EPA 365.1 Rev. 2.0 dissolved	06/16/2017			06/16/2017 15:49	Anthony C. Onicha	1906851
	06/16/2017			06/16/2017 16:26	Anthony C. Onicha	1906841
	06/16/2017			06/16/2017 16:54	Anthony C. Onicha	1906842
	06/16/2017			06/16/2017 16:55	Anthony C. Onicha	1906843
	06/16/2017			06/16/2017 16:56	Anthony C. Onicha	1906844
	06/16/2017			06/16/2017 16:57	Anthony C. Onicha	1906845
	06/16/2017			06/16/2017 16:58	Anthony C. Onicha	1906848
SM 2320 B-97	06/16/2017			06/22/2017	Dale L. Simmons	1906831, 1906832, 1906833, 1906834, 1906835, 1906846
	06/16/2017			06/26/2017	Dale L. Simmons	1906849
SM 2540 D-97	06/16/2017			06/21/2017	Yijie Li	1906831, 1906832, 1906833, 1906834, 1906835, 1906846, 1906849
SM 4500 F-C-97	06/16/2017			06/22/2017	Dale L. Simmons	1906831, 1906832, 1906833, 1906834, 1906835, 1906846
	06/16/2017			06/26/2017	Dale L. Simmons	1906849
SM 5310 B-00	06/16/2017			06/23/2017	Sofia Elnemr	1906850
	06/16/2017			06/27/2017	Sofia Elnemr	1906836, 1906837, 1906838, 1906839, 1906840, 1906847