

Chemical Analysis Report

SO-DIST-2016-06-15-01

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

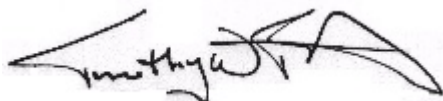
Event Description: **SMP: Florida Keys**
Request ID: **RQ-2016-06-27-04**
Customer: **SO-DIST**
Project ID: **SMP**

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: Timothy Fitzpatrick, Program Administrator

Date Certified: 08-JUL-2016 16:05

A handwritten signature in black ink, appearing to read 'Timothy W. Fitzpatrick', with a stylized flourish at the end.

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: 8079-ENRG3 SOUTH OF STACK ISLAND

Collection Date/Time: 06/14/2016 13:50

Field ID: g5sd0067

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808118	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P306328	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P306670	
	SM 2540 D-97	TSS	3	U	mg/L	P306868	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808127	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P306625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P306743	
	EPA 365.1 Rev. 2.0	Total-P	0.010	J	mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P307067	
1808136	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808164	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.57		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: 8079-ENRG6 OUT BY REEF

Collection Date/Time: 06/14/2016 11:00

Field ID: G5SD0068

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808119	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P306328	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P306670	
	SM 2540 D-97	TSS	4	I	mg/L	P306868	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808128	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P306625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306744	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P307067	
1808137	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808165	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.42		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	

Field ID: G5SD0068

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808165	EPA 200.8 Rev. 5.4	Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8080-ENRG6 OUT BY REEF

Collection Date/Time: 06/14/2016 10:00

Field ID: G5SD0069

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808120	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P306329	
	SM 2320 B-97	Total Alkalinity	114		mg CaCO3/L	P306670	
	SM 2540 D-97	TSS	3	U	mg/L	P306868	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808129	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P306625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306738	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P306569	
1808138	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808166	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.53		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8080-ENRG3 NEARSHORE

Collection Date/Time: 06/14/2016 09:30

Field ID: G5SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808121	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P306329	
	SM 2320 B-97	Total Alkalinity	114	A	mg CaCO3/L	P306671	
	SM 2540 D-97	TSS	3	I	mg/L	P306868	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808130	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P306625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P306738	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P306569	
1808139	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	

Field ID: G5SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808167	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.45		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8073 #5 ENRG1

Collection Date/Time: 06/14/2016 12:40

Field ID: G5SD0066

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808122	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P306329	
	SM 2320 B-97	Total Alkalinity	108		mg CaCO3/L	P306671	
	SM 2540 D-97	TSS	3	U	mg/L	P306868	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808131	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P306625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306738	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P306569	
1808140	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808168	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.53		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P307029	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8073 #1 SOUTH OF FT. ZACH

Collection Date/Time: 06/14/2016 12:15

Field ID: G5SD0062

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808123	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P306329	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P306671	
	SM 2540 D-97	TSS	3	U	mg/L	P306868	

Field ID: G5SD0062

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808123	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808132	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P306889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306738	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P306664	
	SM 5310 B-00	Organic Carbon	1.8	I	mg C/L	P306569	
1808141	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808169	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.41		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8073 #2

Collection Date/Time: 06/14/2016 12:00

Field ID: G5SD0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808124	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P306329	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P306671	
	SM 2540 D-97	TSS	3	U	mg/L	P306868	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P306379	
1808133	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P306626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P306279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306738	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P306569	
1808142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808170	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.73		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8073 #3 ENRG6

Collection Date/Time: 06/14/2016 11:40

Field ID: G5SD0064

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808125	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P306329	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P306671	
	SM 2540 D-97	TSS	4	I	mg/L	P306869	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P306379	
1808134	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P306626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P306291	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306739	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P306538	MS
	SM 5310 B-00	Organic Carbon	1.6	I	mg C/L	P306569	
1808143	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808171	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.35		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.15	U	ug/L	P306345	
		Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: 8073 #4 ENRG2

Collection Date/Time: 06/14/2016 13:10

Field ID: G5SD0065

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808126	EPA 180.1 Rev. 2.0	Turbidity	0.70	A	NTU	P306329	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P306671	
	SM 2540 D-97	TSS	4	I	mg/L	P306869	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P306379	
1808135	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P306626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P306291	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306739	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P306539	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P306569	
1808144	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306250	
1808172	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P306345	
	EPA 200.8 Rev. 5.4	Arsenic	2.34		ug/L	P306345	
		Cadmium	0.060	U	ug/L	P306345	
		Chromium	0.15	U	ug/L	P306345	
		Copper	0.30	U	ug/L	P306345	
		Lead	0.15	U	ug/L	P306345	
		Nickel	0.20	I	ug/L	P307029	

Field ID: G5SD0065

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808172	EPA 200.8 Rev. 5.4	Silver	0.015	U	ug/L	P306345	
		Zinc	3.0	U	ug/L	P306345	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The precision data is unavailable due to the small amount of water in the QC sample.
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306328

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306329

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P306345

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P306345

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P307029

Component	Result	Code	Units
Nickel	0.050	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306625

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306626

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306889

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306279

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306291

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306738

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306739

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306743

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306744

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306538

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306539

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306664

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306250

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

Reference Method: SM 2320 B-97
Batch ID: P306670

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

Reference Method: SM 2320 B-97
Batch ID: P306671

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

Reference Method: SM 2540 D-97
Batch ID: P306868

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306869

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P306379

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306569

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P307067

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: P306345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	108		P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P306345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.2		P	85 - 115
Cadmium	99.2		P	85 - 115
Chromium	96.7		P	85 - 115
Copper	95.6		P	85 - 115
Lead	95.8		P	85 - 115
Nickel	96.5		P	85 - 115
Silver	96.1		P	85 - 115
Zinc	99.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P307029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	93.7		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306625

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306889

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306279

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: P306291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306738

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: P306739

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: P306743

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306744

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306538

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306664

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306250

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

Reference Method: SM 2320 B-97
Batch ID: P306670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P306671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P306379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306569

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P307067

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P306345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808038	Iron	111		P	70 - 130
1808166	Iron	107	107	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P306345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808038	Arsenic	104		P	70 - 130
1808038	Cadmium	99.6		P	70 - 130
1808038	Chromium	85.2		P	70 - 130
1808038	Copper	97.2		P	70 - 130
1808038	Lead	102		P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P306345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808038	Nickel	100		P	70 - 130
1808038	Silver	91.7		P	70 - 130
1808038	Zinc	100		P	70 - 130
1808166	Arsenic	102	100	P/P	70 - 130
1808166	Cadmium	90.3	91.2	P/P	70 - 130
1808166	Chromium	78.7	76.1	P/P	70 - 130
1808166	Copper	94.3	94.5	P/P	70 - 130
1808166	Lead	102	100	P/P	70 - 130
1808166	Nickel	99.1	98.3	P/P	70 - 130
1808166	Silver	88.7	87.0	P/P	70 - 130
1808166	Zinc	96.5	95.5	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P307029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808172	Nickel	92.4	91.5	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808128	Ammonia-N	103	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808319	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807765	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807868	Kjeldahl Nitrogen	96.4	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808135	Kjeldahl Nitrogen	97.4	94.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306738

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: P306738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807864	NO2NO3-N	97.0	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808134	NO2NO3-N	99.5	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809991	NO2NO3-N	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808128	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808127	Total-P	92.0	88.9	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808297	Total-P	92.1	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809577	Total-P	95.8	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808136	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P306379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808119	Fluoride	95.7	95.7	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P306569

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808132	Organic Carbon	93.4	95.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P307067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807826	Organic Carbon	91.7	91.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808262	Turbidity	12.2	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P306345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808166	Iron	0.394	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P306345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808166	Arsenic	1.90	Spike	P	0 - 20
1808166	Cadmium	0.989	Spike	P	0 - 20
1808166	Chromium	3.27	Spike	P	0 - 20
1808166	Copper	0.175	Spike	P	0 - 20
1808166	Lead	1.34	Spike	P	0 - 20
1808166	Nickel	0.811	Spike	P	0 - 20
1808166	Silver	1.93	Spike	P	0 - 20
1808166	Zinc	0.981	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P307029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808172	Nickel	1.00	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306625

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808128	Ammonia-N	2.44	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808319	Ammonia-N	1.33	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807765	Ammonia-N	0.602	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807868	Kjeldahl Nitrogen	0.435	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808135	Kjeldahl Nitrogen	2.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807864	NO2NO3-N	1.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808134	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809991	NO2NO3-N	1.96	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808128	NO2NO3-N	2.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808127	Total-P	3.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808297	Total-P	2.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809577	Total-P	0.459	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808136	O-Phosphate-P	0.690	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P306670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808975	Total Alkalinity	0.0789	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P306671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808121	Total Alkalinity	0.382	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P306379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808119	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P306569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808132	Organic Carbon	2.32	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P307067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807826	Organic Carbon	0.0486	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: A70064
Included Lab Sample IDs: 1808136, 1808137, 1808138, 1808139, 1808140, 1808141, 1808142, 1808143, 1808144

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70080
Included Lab Sample IDs: 1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 4500 F-C-97
Run ID: A70097
Included Lab Sample IDs: 1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.5	P/P	90 - 110
Fluoride	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70112
Included Lab Sample IDs: 1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.8	93.5	P/P	90 - 110
Kjeldahl Nitrogen	93.5	99.5	P/P	90 - 110
Kjeldahl Nitrogen	98.6	105	P/P	90 - 110
Kjeldahl Nitrogen	99.9	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A70129

Included Lab Sample IDs: 1808164, 1808165, 1808166, 1808167, 1808168, 1808169, 1808170, 1808171, 1808172

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A70140

Included Lab Sample IDs: 1808164, 1808165, 1808166, 1808167, 1808168, 1808169, 1808170, 1808171, 1808172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	101	P/P	90 - 110
Arsenic	98.1	100	P/P	90 - 110
Cadmium	100	97.7	P/P	90 - 110
Cadmium	97.7	99.1	P/P	90 - 110
Chromium	94.6	95.2	P/P	90 - 110
Chromium	98.4	94.6	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Copper	99.1	101	P/P	90 - 110
Lead	95.8	95.4	P/P	90 - 110
Lead	96.2	95.8	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Nickel	99.2	101	P/P	90 - 110
Silver	95.3	97.1	P/P	90 - 110
Silver	97.0	95.3	P/P	90 - 110
Zinc	101	101	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70147

Included Lab Sample IDs: 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	93.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70162

Included Lab Sample IDs: 1808127, 1808128, 1808129, 1808130, 1808131, 1808133, 1808134, 1808135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	99.9	100	P/P	90 - 110
Ammonia-N	100	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70166

Included Lab Sample IDs: 1808127, 1808128, 1808129, 1808130, 1808131, 1808133, 1808134, 1808135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A70169

Included Lab Sample IDs: 1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	108	P/P	90 - 110
Total Alkalinity	108	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70190

Included Lab Sample IDs: 1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70200

Included Lab Sample IDs: 1808132

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70237

Included Lab Sample IDs: 1808132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	98.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70300

Included Lab Sample IDs: 1808127, 1808128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.9	98.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A70363

Included Lab Sample IDs: 1808168, 1808172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	92.4	95.4	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					12.2	
EPA 200.7 Rev. 4.4	Iron	108	111	107	107		0.394
EPA 200.8 Rev. 5.4	Arsenic	97.2	104	102	100		1.90
	Cadmium	99.2	99.6	90.3	91.2		0.989
	Chromium	96.7	85.2	78.7	76.1		3.27
	Copper	95.6	97.2	94.3	94.5		0.175
	Lead	95.8	102	102	100		1.34
	Nickel	96.5	100	99.1	98.3		0.811
	Nickel	93.7	92.4	91.5			1.00
	Silver	96.1	91.7	88.7	87.0		1.93
	Zinc	99.3	100	96.5	95.5		0.981
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	103	105			2.44
	Ammonia-N	96.3	101	103			1.33
	Ammonia-N	97.0	102	101			0.602
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	96.4	95.9			0.435
	Kjeldahl Nitrogen	98.9	97.4	94.3			2.92
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.0	98.6			1.49
	NO2NO3-N	100	99.5	101			1.50
	NO2NO3-N	101	101	103			1.96
	NO2NO3-N	102	102	104			2.42
EPA 365.1 Rev. 2.0	Total-P	95.4	92.0	88.9			3.51
	Total-P	93.8	92.1	94.2			2.21
	Total-P	97.0	95.8	95.4			0.459
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	102			0.690
SM 2320 B-97	Total Alkalinity	106				0.0789	
	Total Alkalinity	106				0.382	
SM 4500 F-C-97	Fluoride	98.5	95.7	95.7			0.0
SM 5310 B-00	Organic Carbon	101	93.4	95.6			2.32
	Organic Carbon	102	91.7	91.7			0.0486

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1808164, 1808165, 1808166, 1808167, 1808168, 1808169, 1808170, 1808171, 1808172
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1808164, 1808165, 1808166, 1808167, 1808168, 1808169, 1808170, 1808171, 1808172
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1808136, 1808137, 1808138, 1808139, 1808140, 1808141, 1808142, 1808143, 1808144
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135

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	06/15/2016			06/15/2016 16:02	Rochelle Y Jackson	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
EPA 200.7 Rev. 4.4	06/15/2016	06/16/2016	Elliott D. Healy	06/20/2016	Joshua Ayres	1808164, 1808165, 1808166, 1808167, 1808168, 1808169, 1808170, 1808171, 1808172
EPA 200.8 Rev. 5.4	06/15/2016	06/16/2016	Elliott D. Healy	06/21/2016	Charles J. Peterson	1808164, 1808165, 1808166, 1808167, 1808168, 1808169, 1808170, 1808171, 1808172
EPA 350.1 Rev. 2.0	06/15/2016	06/28/2016	Elliott D. Healy	07/01/2016	Charles J. Peterson	1808168, 1808172
	06/15/2016			06/21/2016	Diana M. Turner	1808127, 1808128, 1808129, 1808130, 1808131, 1808133, 1808134, 1808135
EPA 351.2 Rev. 2.0	06/15/2016	06/16/2016	Sofia Elnemr	06/24/2016	Diana M. Turner	1808132
	06/15/2016			06/17/2016	Christopher Armour	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135
EPA 353.2 Rev. 2.0	06/15/2016			06/23/2016	Peter D. Kaus	1808127, 1808128, 1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135
EPA 365.1 Rev. 2.0	06/15/2016	06/21/2016	Vijayalakshmi Reddy	06/22/2016	Lipi Saha	1808127, 1808128, 1808129, 1808130, 1808131, 1808133, 1808134, 1808135
EPA 365.1 Rev. 2.0 dissolved	06/15/2016	06/22/2016	Vijayalakshmi Reddy	06/23/2016	Lipi Saha	1808132
	06/15/2016			06/15/2016 13:39	Julia Storbeck	1808136
	06/15/2016			06/15/2016 14:09	Julia Storbeck	1808137
	06/15/2016			06/15/2016 14:10	Julia Storbeck	1808138
	06/15/2016			06/15/2016 14:11	Julia Storbeck	1808139
	06/15/2016			06/15/2016 14:16	Julia Storbeck	1808140
	06/15/2016			06/15/2016 14:17	Julia Storbeck	1808141
	06/15/2016			06/15/2016 14:18	Julia Storbeck	1808142, 1808143
	06/15/2016			06/15/2016 14:19	Julia Storbeck	1808144
SM 2320 B-97	06/15/2016			06/22/2016	Rochelle Y Jackson	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
SM 2540 D-97	06/15/2016			06/17/2016	Yijie Li	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
SM 4500 F-C-97	06/15/2016			06/16/2016	Dale L. Simmons	1808118, 1808119, 1808120, 1808121, 1808122, 1808123, 1808124, 1808125, 1808126
SM 5310 B-00	06/15/2016			06/21/2016	Diana M. Turner	1808129, 1808130, 1808131, 1808132, 1808133, 1808134, 1808135
	06/15/2016			06/29/2016	Diana M. Turner	1808127, 1808128