

Chemical Analysis Report

SO-DIST-2017-06-01-01

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-2017-05-29-32**
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: Colin Wright, Program Administrator

Date Certified: 26-JUN-2017 15:39

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical 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: 8073 @ ENRG4 W of Keywest #2

Collection Date/Time: 05/31/2017 15:20

Field ID: G5SD053117-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902897	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P326119	
	SM 2320 B-97	Total Alkalinity	114		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	4	I	mg/L	P326744	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902908	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326206	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P326210	
	SM 5310 B-00	Organic Carbon	1.6	I	mg C/L	P326317	
1902919	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326148	
1902941	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.51		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

Sample Location: 8073 @ ENRG4 W of Keywest #1

Collection Date/Time: 05/31/2017 15:10

Field ID: G5SD053117-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902898	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P326119	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	7	I	mg/L	P326744	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902909	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326206	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P326210	
	SM 5310 B-00	Organic Carbon	1.6	I	mg C/L	P326317	
1902920	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326148	
1902942	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.59		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

Sample Location: 8073 #1 South of Ft. Zach

Collection Date/Time: 05/31/2017 12:20

Field ID: G5SD053117-1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902899	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P326119	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	6	I	mg/L	P326744	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902910	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P326136	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326206	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P326210	
	SM 5310 B-00	Organic Carbon	1.5	I	mg C/L	P326317	
1902921	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326148	
1902943	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.65		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

Sample Location: 8073 @ ENRG6 Out by Reef #1

Collection Date/Time: 05/31/2017 14:40

Field ID: G5SD053117-4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902900	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P326119	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	3	U	mg/L	P326744	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902911	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326210	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P326317	
1902922	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326148	
1902944	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.31		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

Sample Location: 8073 @ ENRG6 Out by Reef #2

Collection Date/Time: 05/31/2017 14:50

Field ID: G5SD053117-5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902901	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P326120	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	4	IA	mg/L	P326745	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902912	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P326210	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P326241	
1902923	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326148	
1902945	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.38		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

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: 8073 @ ENRG2 Bayside #1

Collection Date/Time: 05/31/2017 11:20

Field ID: G5SD053117-6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902902	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P326120	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	4	IQ	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902913	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P326210	
	SM 5310 B-00	Organic Carbon	1.5	I	mg C/L	P326241	
1902924	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326148	
1902946	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.46		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	1.2	I	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	

Field ID: G5SD053117-6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902946	EPA 200.8 Rev. 5.4	Zinc	5.1	I	ug/L	P326226	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample reanalyzed out of holding time due to analytical difficulties.

Sample Location: 8073 @ ENRG2 Bayside #2

Collection Date/Time: 05/31/2017 11:00

Field ID: G5SD053117-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902903	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P326120	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P326354	
	SM 2540 D-97	TSS	3	I	mg/L	P326745	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326357	
1902914	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P326213	
	SM 5310 B-00	Organic Carbon	1.5	I	mg C/L	P326241	
1902925	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326146	
1902947	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.47		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

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: 8079 @ ENRG6 Out by Reef #1

Collection Date/Time: 05/31/2017 14:00

Field ID: G5SD053117-11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902904	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P326120	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P326355	
	SM 2540 D-97	TSS	4	I	mg/L	P326745	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326358	
1902915	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326213	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P326241	
1902926	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326146	
1902948	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	

Field ID: G5SD053117-11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902948	EPA 200.8 Rev. 5.4	Arsenic	2.34		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

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: 8079 @ ENRG3 Nearshore #2

Collection Date/Time: 05/31/2017 12:50

Field ID: G5SD053117-10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902905	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P326120	
	SM 2320 B-97	Total Alkalinity	114		mg CaCO3/L	P326355	
	SM 2540 D-97	TSS	6	I	mg/L	P326745	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326358	
1902916	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P326184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326213	
	SM 5310 B-00	Organic Carbon	1.6	I	mg C/L	P326241	
1902927	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P326146	
	dissolved						
1902949	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.65		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

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: 8079 @ ENRG6 Out by Reef #2

Collection Date/Time: 05/31/2017 13:40

Field ID: G5SD053117-12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902906	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P326120	
	SM 2320 B-97	Total Alkalinity	121	A	mg CaCO3/L	P326355	
	SM 2540 D-97	TSS	3	U	mg/L	P326745	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P326358	
1902917	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326184	

Field ID: G5SD053117-12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902917	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326213	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P326241	
1902928	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326146	
1902950	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.42		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

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: 8079 @ ENRG3 S of Stock Island

Collection Date/Time: 05/31/2017 13:10

Field ID: G5SD053117-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1902907	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P326120	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P326355	
	SM 2540 D-97	TSS	7	I	mg/L	P326745	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P326358	
1902918	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P326185	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P326196	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326207	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P326213	
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P326241	
1902929	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326146	
1902951	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P326226	
	EPA 200.8 Rev. 5.4	Arsenic	2.66		ug/L	P326226	
		Cadmium	0.080	U	ug/L	P326226	
		Chromium	1.6	U	ug/L	P326226	
		Copper	0.80	U	ug/L	P326226	
		Lead	0.35	U	ug/L	P326226	
		Nickel	0.80	U	ug/L	P326226	
		Silver	0.040	U	ug/L	P326226	
		Zinc	4.0	U	ug/L	P326226	

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: P326119

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P326120

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P326226

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P326226

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	0.050	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: P326184

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326185

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326136

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326196

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: P326206

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326207

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326210

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326213

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326146

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326148

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

Reference Method: SM 2320 B-97
Batch ID: P326354

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

Reference Method: SM 2320 B-97
Batch ID: P326355

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

Reference Method: SM 2540 D-97
Batch ID: P326744

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P326745

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327250

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P326357

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P326358

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P326241

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

Reference Method: SM 5310 B-00
Batch ID: P326317

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: P326226

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P326226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.9		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	100		P	85 - 115
Copper	97.5		P	85 - 115
Lead	97.7		P	85 - 115
Nickel	98.5		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P326226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	99.2		P	85 - 115
Zinc	99.6		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326184

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326185

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326136

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326206

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326207

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: P326210

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326213

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326146

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326148

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

Reference Method: SM 2320 B-97
Batch ID: P326354

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

Reference Method: SM 2320 B-97
Batch ID: P326355

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

Reference Method: SM 4500 F-C-97
Batch ID: P326357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P326358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P326241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326317

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P326226

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P326226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902438	Iron	102	102	P/P	70 - 130
1903254	Iron	97.6		P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P326226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902438	Arsenic	108	109	P/P	70 - 130
1902438	Cadmium	100	101	P/P	70 - 130
1902438	Chromium	90.8	90.9	P/P	70 - 130
1902438	Copper	97.3	98.9	P/P	70 - 130
1902438	Lead	104	105	P/P	70 - 130
1902438	Nickel	104	105	P/P	70 - 130
1902438	Silver	96.3	95.5	P/P	70 - 130
1902438	Zinc	101	102	P/P	70 - 130
1903254	Arsenic	104		P	70 - 130
1903254	Cadmium	92.1		P	70 - 130
1903254	Chromium	84.7		P	70 - 130
1903254	Copper	99.1		P	70 - 130
1903254	Lead	108		P	70 - 130
1903254	Nickel	105		P	70 - 130
1903254	Silver	90.9		P	70 - 130
1903254	Zinc	88.5		P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902908	Ammonia-N	99.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902918	Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902910	Kjeldahl Nitrogen	99.8	96.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902908	Kjeldahl Nitrogen	93.5	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326206

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: P326206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902861	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P326207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902911	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P326210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902877	Total-P	96.8	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P326213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1903149	Total-P	94.7	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P326146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902726	O-Phosphate-P	94.9	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P326148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902881	O-Phosphate-P	97.4	98.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P326357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902394	Fluoride	97.3	98.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P326358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902906	Fluoride	95.4	95.4	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P326241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901719	Organic Carbon	93.9	93.0	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P326317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902483	Organic Carbon	93.0	93.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902867	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902902	Turbidity	5.32	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P326226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902438	Iron	0.255	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P326226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902438	Arsenic	0.750	Spike	P	0 - 20
1902438	Cadmium	1.03	Spike	P	0 - 20
1902438	Chromium	0.0954	Spike	P	0 - 20
1902438	Copper	1.51	Spike	P	0 - 20
1902438	Lead	0.787	Spike	P	0 - 20
1902438	Nickel	0.285	Spike	P	0 - 20
1902438	Silver	0.768	Spike	P	0 - 20
1902438	Zinc	1.24	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902908	Ammonia-N	1.48	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902918	Ammonia-N	1.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902910	Kjeldahl Nitrogen	2.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902908	Kjeldahl Nitrogen	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902861	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902911	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902877	Total-P	5.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1903149	Total-P	0.648	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902726	O-Phosphate-P	0.294	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902881	O-Phosphate-P	1.02	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P326354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902751	Total Alkalinity	0.0219	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P326355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902906	Total Alkalinity	0.00750	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P326744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902808	TSS	1.27	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P326357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902394	Fluoride	0.986	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P326358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902906	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P326241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901719	Organic Carbon	0.927	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P326317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902483	Organic Carbon	0.0942	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76814

Included Lab Sample IDs: 1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105
Turbidity	102	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76820

Included Lab Sample IDs: 1902919, 1902920, 1902921, 1902922, 1902923, 1902924, 1902925, 1902926, 1902927, 1902928, 1902929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76841

Included Lab Sample IDs: 1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76855

Included Lab Sample IDs: 1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76868

Included Lab Sample IDs: 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76886

Included Lab Sample IDs: 1902910

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76898

Included Lab Sample IDs: 1902908, 1902909, 1902911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.3	92.4	P/P	90 - 110
Kjeldahl Nitrogen	92.4	91.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76902

Included Lab Sample IDs: 1902908, 1902909, 1902910, 1902911

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.5	96.1	P/P	90 - 110
Organic Carbon	95.8	95.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76906

Included Lab Sample IDs: 1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	97.8	97.9	P/P	90 - 110
Iron	97.9	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76914

Included Lab Sample IDs: 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76915

Included Lab Sample IDs: 1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
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: A76915

Included Lab Sample IDs: 1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	100	101	P/P	90 - 110
Fluoride	98.5	99.1	P/P	90 - 110
Fluoride	99.1	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76950

Included Lab Sample IDs: 1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76950

Included Lab Sample IDs: 1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77055

Included Lab Sample IDs: 1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	97.2	98.7	P/P	90 - 110
Cadmium	98.7	98.2	P/P	90 - 110
Chromium	91.3	90.9	P/P	90 - 110
Chromium	94.3	91.3	P/P	90 - 110
Copper	102	98.0	P/P	90 - 110
Copper	98.0	98.4	P/P	90 - 110
Nickel	101	97.7	P/P	90 - 110
Nickel	97.7	97.9	P/P	90 - 110
Silver	98.3	98.8	P/P	90 - 110
Silver	98.8	98.4	P/P	90 - 110
Zinc	97.8	97.9	P/P	90 - 110
Zinc	99.8	97.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77154

Included Lab Sample IDs: 1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.3	97.6	P/P	90 - 110
Arsenic	99.1	98.3	P/P	90 - 110
Lead	104	97.1	P/P	90 - 110
Lead	96.4	104	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						0.0	
	Turbidity						5.32	
EPA 200.7 Rev. 4.4	Iron	99.0		102	102	97.6		0.255
EPA 200.8 Rev. 5.4	Arsenic	97.9		108	109	104		0.750
	Cadmium	102		100	101	92.1		1.03
	Chromium	100		90.8	90.9	84.7		0.0954
	Copper	97.5		97.3	98.9	99.1		1.51
	Lead	97.7		104	105	108		0.787
	Nickel	98.5		104	105	105		0.285
	Silver	99.2		96.3	95.5	90.9		0.768
	Zinc	99.6		101	102	88.5		1.24

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.6	101		1.48
	Ammonia-N	101	103	101		1.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	99.8	96.7		2.81
	Kjeldahl Nitrogen	96.6	93.5	94.6		1.01
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	105		0.477
	NO2NO3-N	104	105	105		0.0
EPA 365.1 Rev. 2.0	Total-P	99.4	96.8	102		5.40
	Total-P	97.4	94.7	95.3		0.648
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	94.9	94.6		0.294
	O-Phosphate-P	97.5	97.4	98.4		1.02
SM 2320 B-97	Total Alkalinity	103			0.0219	
	Total Alkalinity	103			0.0075	
SM 2540 D-97	TSS				1.27	
SM 4500 F-C-97	Fluoride	96.6	97.3	98.8		0.986
	Fluoride	99.0	95.4	95.4		0.0
SM 5310 B-00	Organic Carbon	94.6	93.9	93.0		0.927
	Organic Carbon	95.3	93.0	93.1		0.0942

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1902919, 1902920, 1902921, 1902922, 1902923, 1902924, 1902925, 1902926, 1902927, 1902928, 1902929
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918

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	06/01/2017			06/01/2017 16:02	Sima Feizi	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907
EPA 200.7 Rev. 4.4	06/01/2017	06/05/2017	Elliott D. Healy	06/06/2017	Betina Topolski	1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951
EPA 200.8 Rev. 5.4	06/01/2017	06/05/2017	Elliott D. Healy	06/14/2017	Robert K Palmer	1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951
	06/01/2017	06/05/2017	Elliott D. Healy	06/16/2017	Robert K Palmer	1902941, 1902942, 1902943, 1902944, 1902945, 1902946, 1902947, 1902948, 1902949, 1902950, 1902951
EPA 350.1 Rev. 2.0	06/01/2017			06/02/2017	Julie Michelle Frank	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 351.2 Rev. 2.0	06/01/2017	06/02/2017	Adrian Shelby	06/06/2017	Joseph Suarez	1902910
	06/01/2017	06/05/2017	Adrian Shelby	06/06/2017	Joseph Suarez	1902908, 1902909, 1902911
	06/01/2017	06/05/2017	Adrian Shelby	06/07/2017	Joseph Suarez	1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 353.2 Rev. 2.0	06/01/2017			06/05/2017	Beverly Y. Sanders	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 365.1 Rev. 2.0	06/01/2017	06/05/2017	Vijayalakshmi Reddy	06/08/2017	Lipi Saha	1902908, 1902909, 1902910, 1902911, 1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
EPA 365.1 Rev. 2.0 dissolved	06/01/2017			06/01/2017 16:30	Anthony C. Onicha	1902919, 1902920
	06/01/2017			06/01/2017 16:31	Anthony C. Onicha	1902921
	06/01/2017			06/01/2017 16:32	Anthony C. Onicha	1902922
	06/01/2017			06/01/2017 16:33	Anthony C. Onicha	1902923
	06/01/2017			06/01/2017 16:34	Anthony C. Onicha	1902924
	06/01/2017			06/01/2017 16:39	Anthony C. Onicha	1902925
	06/01/2017			06/01/2017 16:40	Anthony C. Onicha	1902926
	06/01/2017			06/01/2017 16:41	Anthony C. Onicha	1902927, 1902928
	06/01/2017			06/01/2017 16:42	Anthony C. Onicha	1902929
SM 2320 B-97	06/01/2017			06/07/2017	Dale L. Simmons	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903, 1902904, 1902905, 1902906, 1902907
SM 2540 D-97	06/01/2017			06/05/2017	Sima Feizi	1902897, 1902898, 1902899, 1902900, 1902901, 1902903, 1902904, 1902905, 1902906, 1902907
	06/01/2017			06/19/2017	Sima Feizi	1902902
SM 4500 F-C-97	06/01/2017			06/06/2017	Dale L. Simmons	1902897, 1902898, 1902899, 1902900, 1902901, 1902902, 1902903
	06/01/2017			06/07/2017	Dale L. Simmons	1902904, 1902905, 1902906, 1902907

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	06/01/2017			06/05/2017	Christopher Armour	1902912, 1902913, 1902914, 1902915, 1902916, 1902917, 1902918
	06/01/2017			06/06/2017	Christopher Armour	1902908, 1902909, 1902910, 1902911