

Chemical Analysis Report

SO-DIST-2017-06-15-01

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-2017-06-05-10**
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
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Certified by: Colin Wright, Program Administrator

Date Certified: 13-JUL-2017 12:29



NON-CONFORMANCE REPORT INCLUDED

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 @ ENRG6 Out by Reef #2

Collection Date/Time: 06/14/2017 13:45

Field ID: G5SD061417-5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906530	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P326896	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	5	IA	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906541	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P326987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P327011	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327108	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P327459	
1906552	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326934	
1906626	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.3	I	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: 8079 @ ENRG3 Nearshore #2

Collection Date/Time: 06/14/2017 12:20

Field ID: G5SD061417-10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906531	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P326896	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	5	I	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906542	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P326987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P327011	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327108	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P327459	
1906553	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326934	
1906627	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.4	I	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	

Field ID: G5SD061417-10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906627	EPA 200.8 Rev. 5.4	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: 8079 @ ENRG6 Out by Reef #1

Collection Date/Time: 06/14/2017 13:10

Field ID: G5SD061417-11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906532	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P326896	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	4	I	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P327368	
1906543	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P327011	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327108	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P327459	
1906554	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326934	
1906628	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.4	I	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: 8079 @ ENRG6 Out by Reef #2

Collection Date/Time: 06/14/2017 12:55

Field ID: G5SD061417-12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906533	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	4	I	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P327368	
1906544	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P327072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327108	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.0	I	mg C/L	P327459	
1906555	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326934	
1906629	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.5	I	ug/L	P327055	

Field ID: G5SD061417-12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906629	EPA 200.8 Rev. 5.4	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: 8073 #1 South of Ft. Zach

Collection Date/Time: 06/14/2017 12:00

Field ID: G5SD061417-1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906534	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	115		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	11		mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906545	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P326987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P327011	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P327113	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P327585	
1906556	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326934	
1906630	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.4	I	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: 8073 @ ENRG4 W of Keywest #1

Collection Date/Time: 06/14/2017 14:05

Field ID: G5SD061417-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906535	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	3	U	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P327368	
1906546	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326987	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P327011	

Field ID: G5SD061417-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906546	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327113	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P327585	
1906557	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326934	
1906631	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.4	I	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: 8073 @ ENRG4 W of Keywest #2

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

Field ID: G5SD061417-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906536	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	3	U	mg/L	P327250	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906547	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P327011	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327113	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P327585	
1906558	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326935	
1906632	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	15.5		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	46	I	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.

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 07/07/2017.

Sample Location: 8073 @ ENRG2 Bayside #1

Collection Date/Time: 06/14/2017 11:05

Field ID: G5SD061417-6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906537	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	5	IA	mg/L	P327251	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906548	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P327011	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327113	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.5	I	mg C/L	P327459	
1906559	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326935	
1906633	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.2	I	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: 8073 @ ENRG2 Bayside #2

Collection Date/Time: 06/14/2017 11:20

Field ID: G5SD061417-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906538	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	3	I	mg/L	P327251	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906549	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P327072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327113	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P326984	
	SM 5310 B-00	Organic Carbon	1.3	I	mg C/L	P327459	
1906560	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326935	
1906634	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.2	I	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	

Field ID: G5SD061417-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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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 @ ENRG1 N of Dredgers Key

Collection Date/Time: 06/14/2017 10:40

Field ID: G5SD061417-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906539	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	4	I	mg/L	P327251	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906550	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P327072	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327113	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P327048	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P327459	
1906561	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326935	
1906635	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.6	I	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: 8079 @ ENRG3 S of Stock Island

Collection Date/Time: 06/14/2017 12:40

Field ID: G5SD061417-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906540	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P326897	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P327363	
	SM 2540 D-97	TSS	3	U	mg/L	P327251	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P327368	
1906562	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P326935	
1906636	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P327055	
	EPA 200.8 Rev. 5.4	Arsenic	1.5	I	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	

Field ID: G5SD061417-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1906636	EPA 200.8 Rev. 5.4	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.

Non-Conformance Report

NCR ID: 6501

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SO-DIST-2017-06-15-01	TLH-2017-06-15-38	1906632	
SO-DIST-2017-06-15-01	TLH-2017-06-15-38	1906636	

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample(s) not preserved to pH < 2. (for metals analysis)

Resolution: Samples preserved in the laboratory with nitric acid on 06/15/2017 at 11:30 AM.

Authorized by/Date: Ramsey K. White 6/20/2017

NCR ID: 6505

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
SO-DIST-2017-06-15-01	TLH-2017-06-15-18	1906551	

NCR Type: SAMPLING

NCR Category: General

Observation: Sample 1906551 (Field ID G5SD061417-9) appears to be preserved with nitric acid. Sample has a nitrite/nitrate concentration of 440 mg N/L. The unpreserved aliquot (laboratory ID 1906540) did not contain nitrite/nitrate at this order of magnitude.

Resolution: Customer (Kirby Wolfe) was contacted and he requested that the affected tests be cancelled.

Authorized by/Date: Colin Wright 7/13/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P326896

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P326897

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P327055

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

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

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 350.1 Rev. 2.0
Batch ID: P326987

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327011

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327072

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327108

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327113

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327048

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326934

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326935

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

Reference Method: SM 2320 B-97
Batch ID: P327363

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

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

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327251

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327368

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327459

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: P327585

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 200.8 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 350.1 Rev. 2.0
Batch ID: P326987

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

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: P327011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327072

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327108

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: P327113

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327048

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326934

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P327363

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

Reference Method: SM 4500 F-C-97
Batch ID: P327368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P327585

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 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 200.8 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 350.1 Rev. 2.0
Batch ID: P326987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906541	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906547	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906542	Kjeldahl Nitrogen	96.3	95.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906549	Kjeldahl Nitrogen	101	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906338	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906545	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906541	Total-P	91.5	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906673	Total-P	97.6	91.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906552	O-Phosphate-P	96.7	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906558	O-Phosphate-P	97.3	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906054	Fluoride	97.6	98.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P327459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906192	Organic Carbon	94.4	95.4	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P327585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906931	Organic Carbon	95.6	94.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906486	Turbidity	1.57	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906580	Turbidity	2.74	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 200.8 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 350.1 Rev. 2.0
 Batch ID: P326987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906541	Ammonia-N	1.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906547	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906542	Kjeldahl Nitrogen	0.968	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906549	Kjeldahl Nitrogen	6.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906338	NO2NO3-N	1.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906545	NO2NO3-N	0.458	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906541	Total-P	2.64	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906673	Total-P	6.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906552	O-Phosphate-P	0.926	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906558	O-Phosphate-P	0.717	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P327363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906054	Total Alkalinity	0.558	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P327368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906054	Fluoride	0.979	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906192	Organic Carbon	0.723	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P327585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906931	Organic Carbon	0.969	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 180.1 Rev. 2.0
Run ID: A77118
Included Lab Sample IDs: 1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540

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 dissolved
Run ID: A77126
Included Lab Sample IDs: 1906552, 1906553, 1906554, 1906555, 1906556, 1906557, 1906558, 1906559, 1906560, 1906561, 1906562

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77126

Included Lab Sample IDs: 1906552, 1906553, 1906554, 1906555, 1906556, 1906557, 1906558, 1906559, 1906560, 1906561, 1906562

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110
O-Phosphate-P	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77147

Included Lab Sample IDs: 1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.5	P/P	90 - 110
Ammonia-N	99.5	99.6	P/P	90 - 110
Ammonia-N	99.6	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77173

Included Lab Sample IDs: 1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77182

Included Lab Sample IDs: 1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77194

Included Lab Sample IDs: 1906550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77212

Included Lab Sample IDs: 1906541, 1906542, 1906543, 1906545, 1906546, 1906547, 1906548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	98.4	P/P	90 - 110
Kjeldahl Nitrogen	98.4	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A77217

Included Lab Sample IDs: 1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	97.7	96.1	P/P	90 - 110
Iron	97.8	97.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77234

Included Lab Sample IDs: 1906544, 1906549, 1906550

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

Reference Method: SM 2320 B-97

Run ID: A77288

Included Lab Sample IDs: 1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540

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

Reference Method: SM 4500 F-C-97

Run ID: A77288

Included Lab Sample IDs: 1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.1	96.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77331

Included Lab Sample IDs: 1906541, 1906542, 1906543, 1906544, 1906548, 1906549, 1906550

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.9	93.2	P/P	90 - 110
Organic Carbon	93.2	92.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77378

Included Lab Sample IDs: 1906545, 1906546, 1906547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77444

Included Lab Sample IDs: 1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.4	97.9	P/P	90 - 110
Arsenic	97.9	95.3	P/P	90 - 110
Arsenic	99.6	97.4	P/P	90 - 110
Cadmium	100	99.6	P/P	90 - 110
Cadmium	99.6	98.7	P/P	90 - 110
Cadmium	99.7	100	P/P	90 - 110
Chromium	100	102	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Chromium	102	99.7	P/P	90 - 110
Copper	98.2	99.6	P/P	90 - 110
Copper	99.6	98.1	P/P	90 - 110
Copper	99.8	98.2	P/P	90 - 110
Lead	101	102	P/P	90 - 110
Lead	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77444

Included Lab Sample IDs: 1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	102	101	P/P	90 - 110
Nickel	102	99.6	P/P	90 - 110
Nickel	99.2	98.9	P/P	90 - 110
Nickel	99.6	99.2	P/P	90 - 110
Silver	98.4	98.8	P/P	90 - 110
Silver	98.8	97.6	P/P	90 - 110
Silver	98.9	98.4	P/P	90 - 110
Zinc	97.6	99.2	P/P	90 - 110
Zinc	99.2	96.8	P/P	90 - 110
Zinc	99.4	97.6	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						1.57	
	Turbidity						2.74	
EPA 200.7 Rev. 4.4	Iron	98.4	97.9	98.1	91.4			0.270
EPA 200.8 Rev. 5.4	Arsenic	102	98.8	102	97.5			2.79
	Cadmium	109	91.9	96.8	100			5.18
	Chromium	106	98.5	98.2	101			0.353
	Copper	105	98.7	104	91.5			4.85
	Lead	104	100	105	105			4.62
	Nickel	106	99.5	100	93.3			0.519
	Silver	102	94.0	99.6	95.9			5.72
	Zinc	103	89.0	97.2	86.4			8.72
EPA 350.1 Rev. 2.0	Ammonia-N	103	103	102				1.11
	Ammonia-N	101	101	103				1.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	96.3	95.3				0.968
	Kjeldahl Nitrogen	99.8	101	94.4				6.41
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	104				1.02
	NO2NO3-N	106	105	105				0.458
EPA 365.1 Rev. 2.0	Total-P	105	91.5	94.0				2.64
	Total-P	100	97.6	91.6				6.07
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	96.7	97.6				0.926
	O-Phosphate-P	98.1	97.3	98.0				0.717
SM 2320 B-97	Total Alkalinity	103					0.558	
SM 4500 F-C-97	Fluoride	94.6	97.6	98.9				0.979
SM 5310 B-00	Organic Carbon	94.2	94.4	95.4				0.723
	Organic Carbon	95.8	95.6	94.6				0.969

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1906552, 1906553, 1906554, 1906555, 1906556, 1906557, 1906558, 1906559, 1906560, 1906561, 1906562
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550

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	06/15/2017			06/15/2017 15:04	Sima Feizi	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
EPA 200.7 Rev. 4.4	06/15/2017	06/19/2017	Elliott D. Healy	06/20/2017	Betina Topolski	1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636
EPA 200.8 Rev. 5.4	06/15/2017	06/19/2017	Elliott D. Healy	06/29/2017	Robert K Palmer	1906626, 1906627, 1906628, 1906629, 1906630, 1906631, 1906632, 1906633, 1906634, 1906635, 1906636
EPA 350.1 Rev. 2.0	06/15/2017			06/16/2017	Sofia Elnemr	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550
EPA 351.2 Rev. 2.0	06/15/2017	06/19/2017	Adrian Shelby	06/20/2017	Tanya Welborn	1906541, 1906542, 1906543, 1906545, 1906546, 1906547, 1906548
EPA 353.2 Rev. 2.0	06/15/2017	06/20/2017	Adrian Shelby	06/21/2017	Joseph Suarez	1906544, 1906549, 1906550
	06/15/2017			06/19/2017	Beverly Y. Sanders	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549, 1906550
EPA 365.1 Rev. 2.0	06/15/2017	06/16/2017	Vijayalakshmi Reddy	06/19/2017	Lipi Saha	1906541, 1906542, 1906543, 1906544, 1906545, 1906546, 1906547, 1906548, 1906549
EPA 365.1 Rev. 2.0 dissolved	06/15/2017	06/19/2017	Vijayalakshmi Reddy	06/20/2017	Lipi Saha	1906550
	06/15/2017			06/15/2017 14:48	Anthony C. Onicha	1906552
	06/15/2017			06/15/2017 14:57	Anthony C. Onicha	1906558
	06/15/2017			06/15/2017 15:24	Anthony C. Onicha	1906553
	06/15/2017			06/15/2017 15:25	Anthony C. Onicha	1906554, 1906555
	06/15/2017			06/15/2017 15:26	Anthony C. Onicha	1906556
	06/15/2017			06/15/2017 15:27	Anthony C. Onicha	1906557
	06/15/2017			06/15/2017 15:33	Anthony C. Onicha	1906559
	06/15/2017			06/15/2017 15:34	Anthony C. Onicha	1906560
	06/15/2017			06/15/2017 15:35	Anthony C. Onicha	1906561
	06/15/2017			06/15/2017 15:36	Anthony C. Onicha	1906562
SM 2320 B-97	06/15/2017			06/22/2017	Dale L. Simmons	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
SM 2540 D-97	06/15/2017			06/19/2017	Sima Feizi	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
SM 4500 F-C-97	06/15/2017			06/22/2017	Dale L. Simmons	1906530, 1906531, 1906532, 1906533, 1906534, 1906535, 1906536, 1906537, 1906538, 1906539, 1906540
SM 5310 B-00	06/15/2017			06/25/2017	Sofia Elnemr	1906541, 1906542, 1906543, 1906544, 1906548, 1906549, 1906550
	06/15/2017			06/28/2017	Ping Hua	1906545, 1906546, 1906547