

Chemical Analysis Report

SE-DIST-2016-05-18-01

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

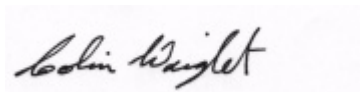
Event Description: **SMP-Orange Run**
Request ID: **RQ-2016-05-16-37**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 15-JUN-2016 09:27

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored 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: C-1 Black Creek @ 97th A ve

Collection Date/Time: 05/17/2016 11:30

Field ID: 28040402

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799771	EPA 180.1 Rev. 2.0	Turbidity	0.95	A	NTU	P304663	
	EPA 300.0 Rev. 2.1	Chloride	53		mg Cl/L	P305006	
		Sulfate	11		mg SO4/L	P305008	
	SM 2120 B	Color (true)	33		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	311		mg/L	P305234	
	SM 2540 D-97	TSS	3	I	mg/L	P305153	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P304844	
1799778	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.71		mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P305320	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P305285	
1799785	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799822	EPA 200.7 Rev. 4.4	Calcium	72.2		mg/L	P304804	
		Iron	95	I	ug/L	P304804	
		Magnesium	7.76		mg/L	P304804	
		Potassium	4.5		mg/L	P304804	
		Sodium	32.9		mg/L	P304804	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P304804	
		Arsenic	0.92		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.056	I	ug/L	P304804	
		Copper	0.26	I	ug/L	P304804	
		Lead	0.050	U	ug/L	P304804	
		Nickel	0.28		ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: Duplicate C-1 Black Creek

Collection Date/Time: 05/17/2016 11:35

Field ID: 28040402-dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799772	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P304663	
	EPA 300.0 Rev. 2.1	Chloride	53		mg Cl/L	P305006	
		Sulfate	11		mg SO4/L	P305008	
	SM 2120 B	Color (true)	35		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	307		mg/L	P305234	
	SM 2540 D-97	TSS	3	I	mg/L	P305153	

Field ID: 28040402-dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799772	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P304844	
1799779	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.71		mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P305285	
1799786	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799823	EPA 200.7 Rev. 4.4	Calcium	72.2		mg/L	P304804	
		Iron	95	I	ug/L	P304804	
		Magnesium	7.76		mg/L	P304804	
		Potassium	4.5		mg/L	P304804	
		Sodium	32.6		mg/L	P304804	
		Zinc	5.0	U	ug/L	P304804	
	EPA 200.8 Rev. 5.4	Arsenic	0.88		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.059	I	ug/L	P304804	
		Copper	0.24	I	ug/L	P304804	
		Lead	0.050	U	ug/L	P304804	
		Nickel	0.26		ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: Blank @ C-1 Black Creek

Collection Date/Time: 05/17/2016 11:40

Field ID: 28040402-Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799792	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P304581	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P305099	
		Sulfate	0.20	U	mg SO4/L	P305470	
	SM 2120 B	Color (true)	2.5	U	PCU	P304562	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	15	U	mg/L	P305233	
	SM 2540 D-97	TSS	2	U	mg/L	P305152	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304844	
1799793	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P305285	
1799794	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799829	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P304986	

Field ID: 28040402-Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799829	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P304986	
		Magnesium	0.040	U	mg/L	P304986	
		Potassium	0.30	U	mg/L	P304986	
		Sodium	0.50	U	mg/L	P304986	
		Zinc	5.0	U	ug/L	P304986	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P304986	
		Cadmium	0.020	U	ug/L	P304986	
		Chromium	0.050	U	ug/L	P304986	
		Copper	0.10	U	ug/L	P304986	
		Lead	0.050	U	ug/L	P304986	
		Nickel	0.050	U	ug/L	P304986	
		Silver	0.0050	U	ug/L	P304986	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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: The result was confirmed on 06/07/2016.

EPA 200.7 Rev. 4.4: The magnesium, potassium, and sodium matrix spike recoveries are unavailable due to high analyte concentration in the QC sample.

Sample Location: C-1 Black Creek @ Old Cutler Rd

Collection Date/Time: 05/17/2016 12:00

Field ID: G4SE0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799773	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P304580	
	EPA 300.0 Rev. 2.1	Chloride	56		mg Cl/L	P305006	
		Sulfate	9.8		mg SO4/L	P305008	
		Color (true)	40		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	184		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	331		mg/L	P305234	
	SM 2540 D-97	TSS	3	I	mg/L	P305153	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P304844	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P305202	
		Kjeldahl Nitrogen	0.89		mg N/L	P305081	
1799780	EPA 353.2 Rev. 2.0	NO2NO3-N	0.82		mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P305285	
1799787	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799824	EPA 200.7 Rev. 4.4	Calcium	69.9		mg/L	P304804	
		Iron	110	I	ug/L	P304804	
		Magnesium	8.19		mg/L	P304804	
		Potassium	4.9		mg/L	P304804	
		Sodium	34.2		mg/L	P304804	
		Zinc	5.0	U	ug/L	P304804	
	EPA 200.8 Rev. 5.4	Arsenic	0.88		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.073	I	ug/L	P304804	

Field ID: G4SE0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799824	EPA 200.8 Rev. 5.4	Copper	0.23	I	ug/L	P304804	
		Lead	0.050	U	ug/L	P304804	
		Nickel	0.26		ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: Cutler Drain @ Old Cutler Rd

Collection Date/Time: 05/17/2016 12:30

Field ID: G4SECD02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799774	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P304580	
	EPA 300.0 Rev. 2.1	Chloride	55		mg Cl/L	P305006	
		Sulfate	20		mg SO4/L	P305008	
	SM 2120 B	Color (true)	8.4		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	305		mg/L	P305234	
	SM 2540 D-97	TSS	2	U	mg/L	P305153	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P304844	
1799781	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P305285	
1799788	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799825	EPA 200.7 Rev. 4.4	Calcium	79.0		mg/L	P304804	
		Iron	30	U	ug/L	P304804	
		Magnesium	4.68		mg/L	P304804	
		Potassium	3.3		mg/L	P304804	
		Sodium	33.0		mg/L	P304804	
		Zinc	5.0	U	ug/L	P304804	
	EPA 200.8 Rev. 5.4	Arsenic	1.10		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.051	I	ug/L	P304804	
		Copper	0.75		ug/L	P304804	
		Lead	0.050	U	ug/L	P304804	
		Nickel	0.49		ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: Cutler Drain @ Coral Reef Park

Collection Date/Time: 05/17/2016 12:45

Field ID: G4SECD06

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799775	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P304580	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P305006	
		Sulfate	19		mg SO4/L	P305008	
	SM 2120 B	Color (true)	6.4		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	264		mg/L	P305234	
	SM 2540 D-97	TSS	4	I	mg/L	P305153	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P304844	
1799782	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P305285	
1799789	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799826	EPA 200.7 Rev. 4.4	Calcium	80.7		mg/L	P304804	
		Iron	45	I	ug/L	P304804	
		Magnesium	3.01		mg/L	P304804	
		Potassium	2.6		mg/L	P304804	
		Sodium	27.6		mg/L	P304804	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P304804	
		Arsenic	1.00		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.050	U	ug/L	P304804	
		Copper	1.72		ug/L	P304804	
		Lead	0.050	U	ug/L	P304804	
		Nickel	0.54		ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: C-2 / Snapper Creek (SP-04)

Collection Date/Time: 05/17/2016 13:15

Field ID: G4SE0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799776	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P304580	
	EPA 300.0 Rev. 2.1	Chloride	56		mg Cl/L	P305006	
		Sulfate	2.2		mg SO4/L	P305008	
	SM 2120 B	Color (true)	45		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	198		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	306		mg/L	P305234	
	SM 2540 D-97	TSS	2	I	mg/L	P305153	

Field ID: G4SE0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799776	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P304844	
1799783	EPA 350.1 Rev. 2.0	Ammonia-N	0.24		mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P305285	
1799790	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799827	EPA 200.7 Rev. 4.4	Calcium	75.2		mg/L	P304804	
		Iron	400		ug/L	P304804	
		Magnesium	7.77		mg/L	P304804	
		Potassium	2.4		mg/L	P304804	
		Sodium	35.4		mg/L	P304804	
		Zinc	5.0	U	ug/L	P304804	
	EPA 200.8 Rev. 5.4	Arsenic	0.92		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.092	I	ug/L	P304804	
		Copper	0.35	I	ug/L	P304804	
		Lead	0.053	I	ug/L	P304804	
		Nickel	0.11	I	ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: C-2 / Snapper Creek @ Red Road

Collection Date/Time: 05/17/2016 13:30

Field ID: G4SE0048

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799777	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P304581	
	EPA 300.0 Rev. 2.1	Chloride	55		mg Cl/L	P305099	
		Sulfate	2.0		mg SO4/L	P305470	
	SM 2120 B	Color (true)	44		PCU	P304562	
	SM 2320 B-97	Total Alkalinity	199		mg CaCO3/L	P304841	
	SM 2540 C-97	TDS	326	A	mg/L	P305234	
	SM 2540 D-97	TSS	2	I	mg/L	P305153	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P304844	
1799784	EPA 350.1 Rev. 2.0	Ammonia-N	0.26		mg N/L	P305202	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P305081	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P304714	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P305321	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P305285	
1799791	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304540	
1799828	EPA 200.7 Rev. 4.4	Calcium	75.4		mg/L	P304804	

Field ID: G4SE0048

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799828	EPA 200.7 Rev. 4.4	Iron	400		ug/L	P304804	
		Magnesium	7.75		mg/L	P304804	
		Potassium	2.4		mg/L	P304804	
		Sodium	35.2		mg/L	P304804	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P304804	
		Arsenic	0.95		ug/L	P304804	
		Cadmium	0.020	U	ug/L	P304804	
		Chromium	0.10	I	ug/L	P304804	
		Copper	0.41		ug/L	P304804	
		Lead	0.056	I	ug/L	P304804	
		Nickel	0.12	I	ug/L	P304804	
		Silver	0.0050	U	ug/L	P304804	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P304580

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P304581

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P304663

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P304804

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304986

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304804

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304986

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305006

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305008

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305099

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305470

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305202

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304714

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305321

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304540

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

Reference Method: SM 2120 B
Batch ID: P304562

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304841

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P305233

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P305234

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305152

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P305153

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304844

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305285

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: P304804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	104		P	85 - 115
Magnesium	98.5		P	85 - 115
Potassium	101		P	85 - 115
Sodium	96.0		P	85 - 115
Zinc	99.5		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	104		P	85 - 115
Magnesium	99.1		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.9		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	99.4		P	85 - 115
Copper	99.5		P	85 - 115
Lead	99.6		P	85 - 115
Nickel	101		P	85 - 115
Silver	95.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	96.5		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	100		P	85 - 115
Copper	94.3		P	85 - 115
Lead	100		P	85 - 115
Nickel	96.5		P	85 - 115
Silver	94.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305006

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305099

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305470

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305470

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304714

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304540

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

Reference Method: SM 2320 B-97
Batch ID: P304841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P304844

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P305285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799826	Iron	99.8		P	80 - 120
1799826	Magnesium	100		P	80 - 120
1799826	Potassium	93.5		P	80 - 120
1799826	Sodium	97.4		P	80 - 120
1799826	Zinc	99.2		P	80 - 120
1800053	Calcium	109		P	80 - 120
1800053	Iron	105	106	P/P	80 - 120
1800053	Magnesium	100		P	80 - 120
1800053	Potassium	99.8	100	P/P	80 - 120
1800053	Sodium	97.7		P	80 - 120
1800053	Zinc	99.0	101	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801523	Calcium	92.3		P	70 - 130
1801523	Iron	102	101	P/P	70 - 130
1801523	Zinc	103	104	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799826	Arsenic	101		P	80 - 120
1799826	Cadmium	102		P	80 - 120
1799826	Chromium	100		P	80 - 120
1799826	Copper	95.1		P	80 - 120
1799826	Lead	102		P	80 - 120
1799826	Nickel	99.3		P	80 - 120
1799826	Silver	96.4		P	80 - 120
1800053	Arsenic	97.4	96.9	P/P	80 - 120
1800053	Cadmium	103	103	P/P	80 - 120
1800053	Chromium	100	98.6	P/P	80 - 120
1800053	Copper	93.2	92.9	P/P	80 - 120
1800053	Lead	101	99.4	P/P	80 - 120
1800053	Nickel	95.6	95.3	P/P	80 - 120
1800053	Silver	95.8	94.6	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1801523	Arsenic	100	98.4	P/P	80 - 120
1801523	Cadmium	100	96.3	P/P	80 - 120
1801523	Chromium	90.5	88.3	P/P	80 - 120
1801523	Copper	89.9	88.8	P/P	80 - 120
1801523	Lead	105	104	P/P	80 - 120
1801523	Nickel	94.9	93.7	P/P	80 - 120
1801523	Silver	89.3	88.4	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1798794	Chloride	98.7		P	90 - 110
1799748	Chloride	97.3	97.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1798794	Sulfate	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799838	Chloride	98.7	98.7	P/P	90 - 110
1800687	Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1800934	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799749	Ammonia-N	96.6	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799778	Kjeldahl Nitrogen	104	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799747	NO2NO3-N	99.4	98.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P305320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799740	Total-P	97.3	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P305321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799779	Total-P	97.2	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P304540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799790	O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P304844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799498	Fluoride	102	101	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P305285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799784	Organic Carbon	96.0	95.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P304580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799727	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P304581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799777	Turbidity	0.851	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P304804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800053	Calcium	0.222	Spike	P	0 - 20
1800053	Iron	0.353	Spike	P	0 - 20
1800053	Magnesium	0.339	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800053	Potassium	0.256	Spike	P	0 - 20
1800053	Sodium	0.362	Spike	P	0 - 20
1800053	Zinc	1.70	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801523	Calcium	2.86	Spike	P	0 - 20
1801523	Iron	0.746	Spike	P	0 - 20
1801523	Magnesium	3.12	Spike	P	0 - 20
1801523	Potassium	3.58	Spike	P	0 - 20
1801523	Sodium	3.43	Spike	P	0 - 20
1801523	Zinc	0.901	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800053	Arsenic	0.474	Spike	P	0 - 20
1800053	Cadmium	0.325	Spike	P	0 - 20
1800053	Chromium	1.63	Spike	P	0 - 20
1800053	Copper	0.348	Spike	P	0 - 20
1800053	Lead	1.25	Spike	P	0 - 20
1800053	Nickel	0.318	Spike	P	0 - 20
1800053	Silver	1.24	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1801523	Arsenic	1.79	Spike	P	0 - 20
1801523	Cadmium	3.83	Spike	P	0 - 20
1801523	Chromium	2.45	Spike	P	0 - 20
1801523	Copper	1.22	Spike	P	0 - 20
1801523	Lead	1.53	Spike	P	0 - 20
1801523	Nickel	1.21	Spike	P	0 - 20
1801523	Silver	1.09	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799748	Chloride	0.0511	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799748	Sulfate	0.239	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799838	Chloride	0.00136	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800699	Sulfate	1.25	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799749	Ammonia-N	0.187	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799778	Kjeldahl Nitrogen	5.20	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799747	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799740	Total-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799779	Total-P	0.962	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799790	O-Phosphate-P	1.51	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799748	Color (true)	1.38	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799498	Total Alkalinity	0.184	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P305233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799527	TDS	5.95	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P305234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799777	TDS	4.29	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799498	Fluoride	1.01	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P305285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799784	Organic Carbon	0.496	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A69552

Included Lab Sample IDs: 1799785, 1799786, 1799787, 1799788, 1799789, 1799790, 1799791, 1799794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110
O-Phosphate-P	99.9	101	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A69558

Included Lab Sample IDs: 1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69569

Included Lab Sample IDs: 1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69600

Included Lab Sample IDs: 1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793

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

Reference Method: SM 2320 B-97

Run ID: A69640

Included Lab Sample IDs: 1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.6	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69640

Included Lab Sample IDs: 1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69673

Included Lab Sample IDs: 1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	103	P/P	90 - 110
Calcium	103	103	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Iron	99.9	101	P/P	90 - 110
Magnesium	100	103	P/P	90 - 110
Magnesium	103	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69673

Included Lab Sample IDs: 1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	99.1	99.4	P/P	90 - 110
Potassium	99.4	100	P/P	90 - 110
Sodium	99.6	99.9	P/P	90 - 110
Sodium	99.9	99.5	P/P	90 - 110
Zinc	100	100	P/P	90 - 110
Zinc	102	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69676

Included Lab Sample IDs: 1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Sulfate	97.9	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69726

Included Lab Sample IDs: 1799829

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	96.2	96.2	P/P	90 - 110
Iron	98.1	98.2	P/P	90 - 110
Magnesium	95.5	95.4	P/P	90 - 110
Potassium	98.0	97.7	P/P	90 - 110
Sodium	98.0	99.2	P/P	90 - 110
Zinc	100	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69737

Included Lab Sample IDs: 1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	98.7	P/P	90 - 110
Ammonia-N	98.2	97.7	P/P	90 - 110
Ammonia-N	98.8	98.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69752

Included Lab Sample IDs: 1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828, 1799829

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	98.7	P/P	90 - 110
Arsenic	97.0	96.3	P/P	90 - 110
Arsenic	98.7	97.4	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Cadmium	99.0	101	P/P	90 - 110
Chromium	100	99.3	P/P	90 - 110
Chromium	100	99.9	P/P	90 - 110
Chromium	99.1	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69752

Included Lab Sample IDs: 1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828, 1799829

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	101	97.6	P/P	90 - 110
Copper	95.0	94.7	P/P	90 - 110
Copper	97.6	96.2	P/P	90 - 110
Lead	97.4	97.7	P/P	90 - 110
Lead	97.6	97.3	P/P	90 - 110
Lead	97.7	97.9	P/P	90 - 110
Nickel	101	98.1	P/P	90 - 110
Nickel	96.4	95.8	P/P	90 - 110
Nickel	98.1	96.4	P/P	90 - 110
Silver	96.6	96.3	P/P	90 - 110
Silver	97.2	97.5	P/P	90 - 110
Silver	97.5	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69753

Included Lab Sample IDs: 1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	99.9	P/P	90 - 110
Kjeldahl Nitrogen	96.8	101	P/P	90 - 110
Kjeldahl Nitrogen	99.9	96.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69764

Included Lab Sample IDs: 1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69814

Included Lab Sample IDs: 1799777, 1799792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	98.5	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69815

Included Lab Sample IDs: 1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793

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

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements. Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.0	
	Turbidity						0.851	
EPA 200.7 Rev. 4.4	Calcium	107	109					0.222
	Calcium	100	92.3					2.86
	Iron	104	99.8	105	106			0.353
	Iron	104	102	101				0.746
	Magnesium	98.5	100	100				0.339
	Magnesium	99.1						3.12
	Potassium	101	93.5	99.8	100			0.256
	Potassium	101						3.58
	Sodium	96.0	97.4	97.7				0.362
	Sodium	101						3.43
	Zinc	99.5	99.2	99.0	101			1.70
	Zinc	101	103	104				0.901
EPA 200.8 Rev. 5.4	Arsenic	98.9	101	97.4	96.9			0.474
	Arsenic	96.5	100	98.4				1.79
	Cadmium	100	102	103	103			0.325
	Cadmium	101	100	96.3				3.83
	Chromium	99.4	100	100	98.6			1.63
	Chromium	100	90.5	88.3				2.45
	Copper	99.5	95.1	93.2	92.9			0.348
	Copper	94.3	89.9	88.8				1.22
	Lead	99.6	102	101	99.4			1.25
	Lead	100	105	104				1.53
	Nickel	101	99.3	95.6	95.3			0.318
	Nickel	96.5	94.9	93.7				1.21
	Silver	95.0	96.4	95.8	94.6			1.24
	Silver	94.1	89.3	88.4				1.09
EPA 300.0 Rev. 2.1	Chloride	100	97.3	97.4	98.7			0.0511
	Chloride	99.1	98.7	98.7	96.7			0.0013
	Sulfate	98.2	96.3					0.239
	Sulfate	99.6	97.1				1.25	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	96.6	96.4				0.187
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	104	95.0				5.20
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.4	98.9				0.491
EPA 365.1 Rev. 2.0	Total-P	99.8	97.3	98.9				1.53
	Total-P	97.7	97.2	96.3				0.962
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	98.5	100				1.51
SM 2120 B	Color (true)						1.38	
SM 2320 B-97	Total Alkalinity	102					0.184	
SM 2540 C-97	TDS						5.95	
	TDS						4.29	
SM 4500 F-C-97	Fluoride	99.5	102	101				1.01
SM 5310 B-00	Organic Carbon	97.8	96.0	95.2				0.496

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828, 1799829

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828, 1799829
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1799785, 1799786, 1799787, 1799788, 1799789, 1799790, 1799791, 1799794
SM 2120 B / E31780	True Color measured at 450 nm	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793

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	05/18/2016			05/18/2016 15:38	Sima Feizi	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
EPA 200.7 Rev. 4.4	05/18/2016	05/23/2016	Elliott D. Healy	05/24/2016	Joshua Ayres	1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828
	05/18/2016	05/25/2016	Elliott D. Healy	05/26/2016	Joshua Ayres	1799829
EPA 200.8 Rev. 5.4	05/18/2016	05/23/2016	Elliott D. Healy	05/27/2016	Charles J. Peterson	1799822, 1799823, 1799824, 1799825, 1799826, 1799827, 1799828
	05/18/2016	05/25/2016	Elliott D. Healy	05/27/2016	Charles J. Peterson	1799829
EPA 300.0 Rev. 2.1	05/18/2016			05/25/2016	Ping Hua	1799771, 1799772, 1799773, 1799774, 1799775, 1799776
	05/18/2016			05/31/2016	Elisa J Lutz	1799777, 1799792
EPA 350.1 Rev. 2.0	05/18/2016			05/26/2016	Diana M. Turner	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 351.2 Rev. 2.0	05/18/2016	05/26/2016	Sofia Elnemr	05/27/2016	Vijayalakshmi Reddy	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 353.2 Rev. 2.0	05/18/2016			05/20/2016	Peter D. Kaus	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 365.1 Rev. 2.0	05/18/2016	05/31/2016	Vijayalakshmi Reddy	06/02/2016	Rochelle Y Jackson	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793
EPA 365.1 Rev. 2.0 dissolved	05/18/2016			05/18/2016 14:46	Julia Storbeck	1799790
	05/18/2016			05/18/2016 15:12	Julia Storbeck	1799785
	05/18/2016			05/18/2016 15:13	Julia Storbeck	1799786
	05/18/2016			05/18/2016 15:14	Julia Storbeck	1799794
	05/18/2016			05/18/2016 15:37	Julia Storbeck	1799787, 1799788
	05/18/2016			05/18/2016 15:38	Julia Storbeck	1799789
	05/18/2016			05/18/2016 15:39	Julia Storbeck	1799791
SM 2120 B	05/18/2016			05/19/2016 00:11	Rochelle Y Jackson	1799771
	05/18/2016			05/19/2016 00:12	Rochelle Y Jackson	1799772, 1799773
	05/18/2016			05/19/2016 00:13	Rochelle Y Jackson	1799774
	05/18/2016			05/19/2016 00:14	Rochelle Y Jackson	1799775
	05/18/2016			05/19/2016 00:15	Rochelle Y Jackson	1799776
	05/18/2016			05/19/2016 00:16	Rochelle Y Jackson	1799777, 1799792
SM 2320 B-97	05/18/2016			05/21/2016	Dale L. Simmons	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 2540 C-97	05/18/2016			05/19/2016	Yijie Li	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 2540 D-97	05/18/2016			05/19/2016	Yijie Li	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 4500 F-C-97	05/18/2016			05/21/2016	Dale L. Simmons	1799771, 1799772, 1799773, 1799774, 1799775, 1799776, 1799777, 1799792
SM 5310 B-00	05/18/2016			05/28/2016	Diana M. Turner	1799778, 1799779, 1799780, 1799781, 1799782, 1799783, 1799784, 1799793