

Chemical Analysis Report

SE-DIST-2016-05-17-01

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

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 06-JUN-2016 15:10



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: FLORIDA CITY CANAL @ 117TH AVE AND 344 STREET **Collection Date/Time: 05/16/2016 11:30**

Field ID: 28040076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799444	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P304594	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P304797	
		Sulfate	24		mg SO4/L	P304800	
	SM 2120 B	Color (true)	2.7	I	PCU	P304461	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	314		mg/L	P304896	
	SM 2540 D-97	TSS	2	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P304843	
1799452	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P304948	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P305019	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.61		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P305190	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P305077	
1799460	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799479	EPA 200.7 Rev. 4.4	Calcium	76.1		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	5.43		mg/L	P304538	
		Potassium	7.6		mg/L	P304538	
		Sodium	32.2		mg/L	P304538	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P304538	
		Arsenic	0.47		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	1.29		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	1.04		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: FLORIDA CITY CANAL (FC-09 MIAMI-DADE) **Collection Date/Time: 05/16/2016 11:45**

Field ID: G4SEFC09

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799445	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P304594	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P304797	
		Sulfate	23		mg SO4/L	P304800	
	SM 2120 B	Color (true)	3.0	I	PCU	P304461	
	SM 2320 B-97	Total Alkalinity	202		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	347		mg/L	P304896	
	SM 2540 D-97	TSS	3	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P304843	

Field ID: G4SEFC09

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799453	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P304948	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.78		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P305190	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P305077	
1799461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799480	EPA 200.7 Rev. 4.4	Calcium	83.9		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	5.38		mg/L	P304538	
		Potassium	7.6		mg/L	P304538	
		Sodium	32.1		mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.44		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	1.19		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	1.03		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: FLORIDA CITY CANAL (FC-15 MIAMI-DADE)

Collection Date/Time: 05/16/2016 12:00

Field ID: G4SEFC15

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799446	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P304594	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P304797	
		Sulfate	20		mg SO4/L	P304800	
		Color (true)	3.3	I	PCU	P304461	
	SM 2320 B-97	Total Alkalinity	188		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	313		mg/L	P304896	
	SM 2540 D-97	TSS	3	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P304843	
1799454	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P304948	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.73		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P305190	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P305077	
1799462	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799481	EPA 200.7 Rev. 4.4	Calcium	78.7		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	5.46		mg/L	P304538	
		Potassium	6.9		mg/L	P304538	

Field ID: G4SEFC15

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799481	EPA 200.7 Rev. 4.4	Sodium	26.4		mg/L	P304538	
		Zinc	5.2	I	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.63		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	0.67		ug/L	P304538	
		Lead	0.081	I	ug/L	P304538	
		Nickel	0.86		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: FLORIDA CITY CANAL (FC-15 MIAMI-DADE)

Collection Date/Time: 05/16/2016 12:05

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799468	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P304595	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P304796	
		Sulfate	0.20	U	mg SO4/L	P305007	
		Color (true)	2.5	U	PCU	P304462	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	15	U	mg/L	P304893	
	SM 2540 D-97	TSS	2	U	mg/L	P304887	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304843	
1799469	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P305199	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304709	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P305191	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P305077	
1799470	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799487	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	0.040	U	mg/L	P304538	
		Potassium	0.30	U	mg/L	P304538	
		Sodium	0.50	U	mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
		EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P304538
	Cadmium		0.020	U	ug/L	P304538	
	Chromium		0.050	U	ug/L	P304538	
	Copper		0.10	U	ug/L	P304538	
	Lead		0.050	U	ug/L	P304538	
	Nickel		0.050	U	ug/L	P304538	
	Silver		0.0050	U	ug/L	P304538	

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 05/17/2016.

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: MOWRYCAN (C-103) @ 152 AV

Collection Date/Time: 05/16/2016 12:45

Field ID: G4SE0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1799447	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P304594	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P304797	
		Sulfate	22		mg SO4/L	P304800	
	SM 2120 B	Color (true)	20	A	PCU	P304461	
	SM 2320 B-97	Total Alkalinity	189		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	345		mg/L	P304896	
	SM 2540 D-97	TSS	2	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P304843	
1799455	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P304948	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.6		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P305190	
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P305077	
1799463	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799482	EPA 200.7 Rev. 4.4	Calcium	77.3		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	7.68		mg/L	P304538	
		Potassium	6.9		mg/L	P304538	
		Sodium	31.7		mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.90		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	0.57		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	0.64		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: C-103 N SW 288ST AND SW 142 AV

Collection Date/Time: 05/16/2016 13:15

Field ID: G4SE0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1799448	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P304595	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P304796	

Field ID: G4SE0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799448	EPA 300.0 Rev. 2.1	Sulfate	29		mg SO4/L	P305007	
	SM 2120 B	Color (true)	9.2		PCU	P304461	
	SM 2320 B-97	Total Alkalinity	208		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	355		mg/L	P304896	
	SM 2540 D-97	TSS	3	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P304843	
1799456	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P305199	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.4		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P305190	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P305077	
1799464	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799483	EPA 200.7 Rev. 4.4	Calcium	90.6		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	6.59		mg/L	P304538	
		Potassium	8.7		mg/L	P304538	
		Sodium	27.2		mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.92		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	0.86		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	0.81		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: C-102 @ SW 248TH ST

Collection Date/Time: 05/16/2016 14:00

Field ID: G4SE0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799449	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P304595	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P304796	
		Sulfate	37		mg SO4/L	P305007	
		Color (true)	2.5	U	PCU	P304461	
	SM 2320 B-97	Total Alkalinity	220		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	364		mg/L	P304896	
	SM 2540 D-97	TSS	2	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P304843	
1799457	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P305199	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	6.3		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P305191	

Field ID: G4SE0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799457	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P305077	
1799465	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799484	EPA 200.7 Rev. 4.4	Calcium	106		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	5.78		mg/L	P304538	
		Potassium	11.1		mg/L	P304538	
		Sodium	19.5		mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.64		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	0.66		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	1.22		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: C-102 @ SW 248TH ST AND SOUTH OF BRIDGE

Collection Date/Time: 05/16/2016 14:05

Field ID: G4SE0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799450	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P304595	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P304796	
		Sulfate	37		mg SO4/L	P305007	
	SM 2120 B	Color (true)	2.9	I	PCU	P304461	
	SM 2320 B-97	Total Alkalinity	220		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	369		mg/L	P304896	
	SM 2540 D-97	TSS	3	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P304843	
1799458	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P305199	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	6.3		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P305191	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P305077	
1799466	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799485	EPA 200.7 Rev. 4.4	Calcium	105		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	5.61		mg/L	P304538	
		Potassium	10.9		mg/L	P304538	
		Sodium	19.1		mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.58		ug/L	P304538	

Field ID: G4SE0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799485	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	0.65		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	1.19		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Sample Location: C-102 @ SW 248TH ST

Collection Date/Time: 05/16/2016 14:40

Field ID: G4SE0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1799451	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P304595	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P304796	
		Sulfate	43		mg SO4/L	P305007	
	SM 2120 B	Color (true)	2.5	U	PCU	P304462	
	SM 2320 B-97	Total Alkalinity	219		mg CaCO3/L	P304849	
	SM 2540 C-97	TDS	387		mg/L	P304896	
	SM 2540 D-97	TSS	2	I	mg/L	P304890	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P304843	
1799459	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P305199	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P305022	
	EPA 353.2 Rev. 2.0	NO2NO3-N	4.2		mg N/L	P304708	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P305191	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P305077	
1799467	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P304450	
1799486	EPA 200.7 Rev. 4.4	Calcium	103		mg/L	P304538	
		Iron	30	U	ug/L	P304538	
		Magnesium	5.69		mg/L	P304538	
		Potassium	12.7		mg/L	P304538	
		Sodium	17.8		mg/L	P304538	
		Zinc	5.0	U	ug/L	P304538	
	EPA 200.8 Rev. 5.4	Arsenic	0.63		ug/L	P304538	
		Cadmium	0.020	U	ug/L	P304538	
		Chromium	0.050	U	ug/L	P304538	
		Copper	1.04		ug/L	P304538	
		Lead	0.050	U	ug/L	P304538	
		Nickel	1.32		ug/L	P304538	
		Silver	0.0050	U	ug/L	P304538	

Ref. Method and Comment:

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 potassium matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 5890

Event(s)

SE-DIST-2016-05-17-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: No collection time was recorded on submittal form for Field ID G4SEFC15.

Resolution: Collection time on sample container used to log into LIMS.

Authorised by/Date: Kathryn Holland 6/6/2016

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

Chemistry Tim Fitzpatrick (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: P304594

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P304595

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P304538

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: P304538

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304796

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304797

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304800

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305007

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304948

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305199

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305019

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305022

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304708

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304709

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305190

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305191

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304450

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

Reference Method: SM 2120 B
Batch ID: P304461

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P304462

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304849

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

Reference Method: SM 2540 C-97
Batch ID: P304893

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304896

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P304887

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304890

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P304843

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P305077

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: P304538

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	85 - 115
Iron	108		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	100		P	85 - 115
Sodium	102		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304538

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.0		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	98.7		P	85 - 115
Copper	98.3		P	85 - 115
Lead	96.5		P	85 - 115
Nickel	100		P	85 - 115
Silver	93.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304796

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304797

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304800

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305007

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304948

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305199

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305019

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305022

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304708

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304709

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305190

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305191

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304450

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

Reference Method: SM 2320 B-97
Batch ID: P304849

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

Reference Method: SM 4500 F-C-97
Batch ID: P304843

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

Reference Method: SM 5310 B-00
Batch ID: P305077

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799421	Calcium	106		P	80 - 120
1799421	Iron	107		P	80 - 120
1799421	Magnesium	101		P	80 - 120
1799421	Sodium	96.3		P	80 - 120
1799421	Zinc	100		P	80 - 120
1799481	Calcium	108		P	80 - 120
1799481	Iron	104	106	P/P	80 - 120
1799481	Magnesium	102		P	80 - 120
1799481	Potassium	101		P	80 - 120
1799481	Sodium	103		P	80 - 120
1799481	Zinc	98.2	98.1	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799421	Arsenic	102		P	80 - 120
1799421	Cadmium	101		P	80 - 120
1799421	Chromium	97.0		P	80 - 120
1799421	Copper	98.6		P	80 - 120
1799421	Lead	98.5		P	80 - 120
1799421	Nickel	98.1		P	80 - 120
1799421	Silver	93.0		P	80 - 120
1799481	Arsenic	100	100	P/P	80 - 120
1799481	Cadmium	99.5	103	P/P	80 - 120
1799481	Chromium	96.8	96.6	P/P	80 - 120
1799481	Copper	94.6	94.5	P/P	80 - 120
1799481	Lead	98.4	98.7	P/P	80 - 120
1799481	Nickel	97.6	97.7	P/P	80 - 120
1799481	Silver	93.7	94.8	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799497	Chloride	98.5		P	90 - 110
1799525	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799328	Chloride	99.8		P	90 - 110
1799379	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799328	Sulfate	96.3		P	90 - 110
1799379	Sulfate	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799147	Sulfate	98.8		P	90 - 110
1799497	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799374	Ammonia-N	98.2	99.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799500	Ammonia-N	98.3	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799335	Kjeldahl Nitrogen	98.9	95.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799453	Kjeldahl Nitrogen	100	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799382	NO2NO3-N	95.9	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799499	NO2NO3-N	99.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799374	Total-P	95.2	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305191

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799457	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799461	O-Phosphate-P	98.4	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P304843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799646	Fluoride	101	99.9	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P305077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1799376	Organic Carbon	99.2	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799379	Turbidity	2.97	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P304595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799497	Turbidity	1.72	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P304538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799481	Calcium	1.71	Spike	P	0 - 20
1799481	Iron	1.28	Spike	P	0 - 20
1799481	Magnesium	2.22	Spike	P	0 - 20
1799481	Potassium	1.30	Spike	P	0 - 20
1799481	Sodium	1.55	Spike	P	0 - 20
1799481	Zinc	0.184	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P304538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799481	Arsenic	0.148	Spike	P	0 - 20
1799481	Cadmium	3.02	Spike	P	0 - 20
1799481	Chromium	0.179	Spike	P	0 - 20
1799481	Copper	0.0423	Spike	P	0 - 20
1799481	Lead	0.274	Spike	P	0 - 20
1799481	Nickel	0.0881	Spike	P	0 - 20
1799481	Silver	1.12	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799525	Chloride	0.110	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799379	Chloride	0.0158	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799379	Sulfate	2.03	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P305007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799497	Sulfate	2.41	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799374	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P305199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799500	Ammonia-N	1.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799335	Kjeldahl Nitrogen	2.87	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P305022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799453	Kjeldahl Nitrogen	3.74	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799382	NO2NO3-N	1.96	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799499	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799374	Total-P	5.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P305191

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799457	Total-P	0.0974	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P304450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799461	O-Phosphate-P	1.31	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799447	Color (true)	9.05	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P304462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799378	Color (true)	3.68	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799646	Total Alkalinity	0.650	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1798557	TDS	8.45	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P304896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799332	TDS	5.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799646	Fluoride	0.467	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P305077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1799376	Organic Carbon	0.973	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69523
Included Lab Sample IDs: 1799460, 1799461, 1799462, 1799463, 1799464, 1799465, 1799466, 1799467, 1799470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	101	99.8	P/P	90 - 110
O-Phosphate-P	99.8	99.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A69527
Included Lab Sample IDs: 1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.0	98.8	P/P	90 - 115
Color (true)	98.8	97.1	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69574
Included Lab Sample IDs: 1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69597

Included Lab Sample IDs: 1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69613

Included Lab Sample IDs: 1799479, 1799480, 1799481, 1799482, 1799483, 1799484, 1799485, 1799486, 1799487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110
Calcium	102	102	P/P	90 - 110
Calcium	102	101	P/P	90 - 110
Iron	100	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	100	100	P/P	90 - 110
Potassium	100	99.3	P/P	90 - 110
Potassium	100	100	P/P	90 - 110
Sodium	102	103	P/P	90 - 110
Sodium	103	103	P/P	90 - 110
Sodium	103	101	P/P	90 - 110
Zinc	101	99.6	P/P	90 - 110
Zinc	102	101	P/P	90 - 110
Zinc	99.6	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69619

Included Lab Sample IDs: 1799479, 1799480, 1799481, 1799482, 1799483, 1799484, 1799485, 1799486, 1799487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.7	98.8	P/P	90 - 110
Arsenic	98.8	98.0	P/P	90 - 110
Cadmium	98.3	98.8	P/P	90 - 110
Cadmium	98.8	100	P/P	90 - 110
Chromium	97.9	98.0	P/P	90 - 110
Chromium	98.0	97.9	P/P	90 - 110
Copper	99.0	96.8	P/P	90 - 110
Copper	99.2	99.0	P/P	90 - 110
Lead	94.9	95.1	P/P	90 - 110
Lead	95.5	94.9	P/P	90 - 110
Nickel	99.0	97.3	P/P	90 - 110
Nickel	99.4	99.0	P/P	90 - 110
Silver	94.8	96.4	P/P	90 - 110
Silver	95.2	94.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69620

Included Lab Sample IDs: 1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	99.9	100	P/P	90 - 110
Sulfate	99.3	96.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69639

Included Lab Sample IDs: 1799487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69640

Included Lab Sample IDs: 1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	101	P/P	90 - 110
Fluoride	99.5	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69641

Included Lab Sample IDs: 1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.3	P/P	90 - 110
Total Alkalinity	99.3	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69674

Included Lab Sample IDs: 1799452, 1799453, 1799454, 1799455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.8	P/P	90 - 110
Ammonia-N	99.0	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69676

Included Lab Sample IDs: 1799448, 1799449, 1799450, 1799451, 1799468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	100	97.5	P/P	90 - 110
Sulfate	97.4	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69711

Included Lab Sample IDs: 1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69737

Included Lab Sample IDs: 1799456, 1799457, 1799458, 1799459, 1799469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	98.5	P/P	90 - 110
Ammonia-N	98.7	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69745

Included Lab Sample IDs: 1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	96.2	P/P	90 - 110
Kjeldahl Nitrogen	94.8	98.1	P/P	90 - 110
Kjeldahl Nitrogen	96.2	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69793

Included Lab Sample IDs: 1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110
Total-P	99.5	98.5	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS	MS	MS		
EPA 180.1 Rev. 2.0	Turbidity					2.97	
	Turbidity					1.72	
EPA 200.7 Rev. 4.4	Calcium	109	106	108			1.71
	Iron	108	107	104	106		1.28
	Magnesium	103	101	102			2.22
	Potassium	100	101				1.30
	Sodium	102	96.3	103			1.55
	Zinc	100	100	98.2	98.1		0.184
EPA 200.8 Rev. 5.4	Arsenic	98.0	102	100	100		0.148
	Cadmium	98.2	101	99.5	103		3.02
	Chromium	98.7	97.0	96.8	96.6		0.179
	Copper	98.3	98.6	94.6	94.5		0.0423
	Lead	96.5	98.5	98.4	98.7		0.274
	Nickel	100	98.1	97.6	97.7		0.0881
	Silver	93.2	93.0	93.7	94.8		1.12
EPA 300.0 Rev. 2.1	Chloride	98.6	100	98.5		0.110	
	Chloride	99.6	98.5	99.8		0.0158	
	Sulfate	96.6	97.0	96.3		2.03	
	Sulfate	99.4	97.9	98.8		2.41	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	98.2	99.9			1.01
	Ammonia-N	99.5	98.3	96.6			1.63

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	98.9	95.7			2.87
	Kjeldahl Nitrogen	109	100	95.0			3.74
EPA 353.2 Rev. 2.0	NO2NO3-N	100	95.9	97.9			1.96
	NO2NO3-N	101	99.5	101			1.50
EPA 365.1 Rev. 2.0	Total-P	99.5	95.2	103			5.00
	Total-P	96.8	101	101			0.0974
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.4	99.7			1.31
SM 2120 B	Color (true)					9.05	
	Color (true)					3.68	
SM 2320 B-97	Total Alkalinity	102				0.650	
SM 2540 C-97	TDS					8.45	
	TDS					5.10	
SM 4500 F-C-97	Fluoride	99.5	101	99.9			0.467
SM 5310 B-00	Organic Carbon	102	99.2	100			0.973

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1799479, 1799480, 1799481, 1799482, 1799483, 1799484, 1799485, 1799486, 1799487
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1799479, 1799480, 1799481, 1799482, 1799483, 1799484, 1799485, 1799486, 1799487
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1799460, 1799461, 1799462, 1799463, 1799464, 1799465, 1799466, 1799467, 1799470
SM 2120 B / E31780	True Color measured at 450 nm	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469

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	05/17/2016			05/17/2016 18:12	Chrisoulla Rakowski	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
EPA 200.7 Rev. 4.4	05/17/2016	05/18/2016	Elliott D. Healy	05/20/2016	Joshua Ayres	1799479, 1799480, 1799481, 1799482, 1799483, 1799484, 1799485, 1799486, 1799487
EPA 200.8 Rev. 5.4	05/17/2016	05/18/2016	Elliott D. Healy	05/20/2016	Charles J. Peterson	1799479, 1799480, 1799481, 1799482, 1799483, 1799484, 1799485, 1799486, 1799487
EPA 300.0 Rev. 2.1	05/17/2016	05/18/2016	Elliott D. Healy	05/23/2016	Charles J. Peterson	1799487
	05/17/2016			05/21/2016	Elisa J Lutz	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
EPA 350.1 Rev. 2.0	05/17/2016			05/25/2016	Ping Hua	1799448, 1799449, 1799450, 1799451, 1799468
	05/17/2016			05/24/2016	Diana M. Turner	1799452, 1799453, 1799454, 1799455
	05/17/2016			05/26/2016	Diana M. Turner	1799456, 1799457, 1799458, 1799459, 1799469
EPA 351.2 Rev. 2.0	05/17/2016	05/25/2016	Sofia Elnemr	05/26/2016	Christopher Armour	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 353.2 Rev. 2.0	05/17/2016			05/20/2016	Peter D. Kaus	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 365.1 Rev. 2.0	05/17/2016	05/27/2016	Vijayalakshmi Reddy	06/01/2016	Rochelle Y Jackson	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469
EPA 365.1 Rev. 2.0 dissolved	05/17/2016			05/17/2016 14:59	Julia Storbeck	1799461
	05/17/2016			05/17/2016 15:19	Julia Storbeck	1799470
	05/17/2016			05/17/2016 15:33	Julia Storbeck	1799460
	05/17/2016			05/17/2016 15:34	Julia Storbeck	1799462
	05/17/2016			05/17/2016 15:35	Julia Storbeck	1799463
	05/17/2016			05/17/2016 15:36	Julia Storbeck	1799464
	05/17/2016			05/17/2016 15:37	Julia Storbeck	1799465
	05/17/2016			05/17/2016 15:38	Julia Storbeck	1799466
SM 2120 B	05/17/2016			05/17/2016 15:39	Julia Storbeck	1799467
	05/17/2016			05/17/2016 14:23	Rochelle Y Jackson	1799444
	05/17/2016			05/17/2016 14:24	Rochelle Y Jackson	1799445
	05/17/2016			05/17/2016 14:25	Rochelle Y Jackson	1799446
	05/17/2016			05/17/2016 14:26	Rochelle Y Jackson	1799447
	05/17/2016			05/17/2016 14:27	Rochelle Y Jackson	1799448
	05/17/2016			05/17/2016 14:28	Rochelle Y Jackson	1799449
	05/17/2016			05/17/2016 14:29	Rochelle Y Jackson	1799450

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	05/17/2016			05/17/2016 14:37	Rochelle Y Jackson	1799451
	05/17/2016			05/17/2016 14:38	Rochelle Y Jackson	1799468
SM 2320 B-97	05/17/2016			05/23/2016	Dale L. Simmons	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 2540 C-97	05/17/2016			05/18/2016	Yijie Li	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 2540 D-97	05/17/2016			05/18/2016	Yijie Li	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 4500 F-C-97	05/17/2016			05/21/2016	Dale L. Simmons	1799444, 1799445, 1799446, 1799447, 1799448, 1799449, 1799450, 1799451, 1799468
SM 5310 B-00	05/17/2016			05/26/2016	Diana M. Turner	1799452, 1799453, 1799454, 1799455, 1799456, 1799457, 1799458, 1799459, 1799469