

Chemical Analysis Report

SE-DIST-2020-02-21-01

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

Event Description: **SMP- Kevin (Even Months)**
Request ID: **RQ-2020-02-17-16**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-MAR-2020 10:02

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Taylor Creek @ 441

Collection Date/Time: 02/20/2020 10:45

Field ID: G1SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159971	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	74		mg Cl/L	P380075	
		Sulfate	46		mg SO4/L	P380077	
		Color (true)	110		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	91		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	297		mg/L	P379923	
	SM 2540 D-2011	TSS	2	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P380176	
2159974	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P379647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P380155	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	22		mg C/L	P379637	
2159977	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P379439	
2159999	EPA 200.7 Rev. 4.4	Barium	26.0		ug/L	P379576	
		Calcium	42.7		mg/L	P379576	
		Iron	150		ug/L	P379576	
		Magnesium	10.4		mg/L	P379576	
		Potassium	17.0		mg/L	P379576	
		Sodium	41.3		mg/L	P379576	
		Zinc	5.0	U	ug/L	P379576	
	EPA 200.8 Rev. 5.4	Aluminum	37		ug/L	P380050	
		Antimony	0.050	U	ug/L	P380050	
		Arsenic	0.54		ug/L	P380050	
		Boron**	48.6		ug/L	P380050	
		Cadmium	0.020	U	ug/L	P380050	
		Chromium	0.50	I	ug/L	P380050	
		Copper	0.59	I	ug/L	P380050	
		Lead	0.20	U	ug/L	P380050	
		Nickel	0.50	U	ug/L	P380050	
		Selenium	0.20	U	ug/L	P380050	
		Silver	0.010	U	ug/L	P380050	
		Thallium	0.10	U	ug/L	P380050	
		Hardness	149		mg/L	P379576	
	SM 2340B						

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Taylor Creek @ 441

Collection Date/Time: 02/20/2020 10:50

Field ID: FB_02202020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159980	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P379383	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P380075	
		Sulfate	0.20	U	mg SO4/L	P380077	
		Color (true)	2.5	U	PCU	P379516	
	SM 2120 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	15	U	mg/L	P379923	
	SM 2540 D-2011	TSS	2	U	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P380176	
2159981	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P379642	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380155	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P379989	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P379637	
2159982	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P379441	
2160002	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P379576	
		Calcium	0.075	U	mg/L	P379576	
		Iron	30	U	ug/L	P379576	
		Magnesium	0.040	U	mg/L	P379576	
		Potassium	0.30	U	mg/L	P379576	
		Sodium	0.50	U	mg/L	P379576	
		Zinc	5.0	U	ug/L	P379576	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P380050	
		Antimony	0.050	U	ug/L	P380050	
		Arsenic	0.050	U	ug/L	P380050	
		Boron**	2.0	U	ug/L	P380050	
		Cadmium	0.020	U	ug/L	P380050	
		Chromium	0.40	U	ug/L	P380050	
		Copper	0.40	U	ug/L	P380050	
		Lead	0.20	U	ug/L	P380050	
		Nickel	0.50	U	ug/L	P380050	
		Selenium	0.20	U	ug/L	P380050	
		Silver	0.010	U	ug/L	P380050	
		Thallium	0.10	U	ug/L	P380050	
		Hardness	0.35	U	mg/L	P379576	
	SM 2340B						

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Taylor Creek @ 39th St.

Collection Date/Time: 02/20/2020 11:00

Field ID: G1SE0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159953	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P379383	
	EPA 300.0 Rev. 2.1	Chloride	97		mg Cl/L	P380074	
		Sulfate	46		mg SO4/L	P380076	
	SM 2120 B-2011	Color (true)	130	A	PCU	P379515	
	SM 2320 B-2011	Total Alkalinity	95		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	331		mg/L	P379923	
	SM 2540 D-2011	TSS	2	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P380176	
2159959	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P379807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P379645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P380154	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P379636	
2159965	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P379439	

Sample Location: Popash Slough @ 67th Dr.

Collection Date/Time: 02/20/2020 11:35

Field ID: G1SE0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159954	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	450		mg Cl/L	P380074	
		Sulfate	130		mg SO4/L	P380076	
		Color (true)	130		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	73		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	966		mg/L	P379923	
	SM 2540 D-2011	TSS	5	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.19		mg F/L	P380176	
2159960	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P379807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P379645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380154	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P379637	
2159966	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P379439	

Sample Location: L-62 upstream of S-154C

Collection Date/Time: 02/20/2020 12:00

Field ID: G1SE0028

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159955	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	330		mg Cl/L	P380074	
		Sulfate	150		mg SO4/L	P380076	
		Color (true)	120		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	72		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	766		mg/L	P379923	
	SM 2540 D-2011	TSS	3	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.31		mg F/L	P380176	
2159961	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P379807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P379645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.068		mg N/L	P380154	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P379637	
2159967	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P379439	

Sample Location: Taylor Creek @ 70

Collection Date/Time: 02/20/2020 13:20

Field ID: G1SE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159956	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	82		mg Cl/L	P380074	
		Sulfate	40		mg SO4/L	P380076	
		Color (true)	100		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	158		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	361		mg/L	P379923	
	SM 2540 D-2011	TSS	12		mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P380176	
2159962	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P379645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P380154	
	EPA 365.1 Rev. 2.0	Total-P	0.38		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P379637	
2159968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P379439	

Sample Location: Lemkin Creek @ 78

Collection Date/Time: 02/20/2020 13:45

Field ID: G1SE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159957	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P379383	
	EPA 300.0 Rev. 2.1	Chloride	300		mg Cl/L	P380074	
		Sulfate	160		mg SO4/L	P380076	
		Color (true)	34	A	PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	97		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	768		mg/L	P379923	
	SM 2540 D-2011	TSS	5	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.096	I	mg F/L	P380176	
2159963	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P379646	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380154	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P379637	
2159969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P379439	

Sample Location: Taylor Creek @ 98

Collection Date/Time: 02/20/2020 14:15

Field ID: G1SE0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159958	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	86		mg Cl/L	P380074	
		Sulfate	41		mg SO4/L	P380076	
	SM 2120 B-2011	Color (true)	120		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	146		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	379	A	mg/L	P379923	
	SM 2540 D-2011	TSS	12	A	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P380176	
2159964	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P379647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P380155	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P379988	
	SM 5310 B-2011	Organic Carbon	25		mg C/L	P379637	
2159970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P379439	

Sample Location: L-63 @ SE 59th Blvd.

Collection Date/Time: 02/20/2020 14:45

Field ID: G1SE0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159972	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P380075	
		Sulfate	46		mg SO4/L	P380077	
		Color (true)	210		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	89		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	357		mg/L	P379923	
	SM 2540 D-2011	TSS	3	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P380176	
2159975	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P379647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P380155	
	EPA 365.1 Rev. 2.0	Total-P	0.38		mg P/L	P379989	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P379637	
2159978	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P379439	
2160000	EPA 200.7 Rev. 4.4	Barium	25.5		ug/L	P379576	
		Calcium	45.5		mg/L	P379576	
		Iron	360		ug/L	P379576	
		Magnesium	12.1		mg/L	P379576	
		Potassium	15.6		mg/L	P379576	
		Sodium	55.5		mg/L	P379576	
		Zinc	5.0	U	ug/L	P379576	
	EPA 200.8 Rev. 5.4	Aluminum	108		ug/L	P380050	
		Antimony	0.059	I	ug/L	P380050	
		Arsenic	0.83		ug/L	P380050	
		Boron**	52.7		ug/L	P380050	
		Cadmium	0.020	U	ug/L	P380050	
		Chromium	0.63	I	ug/L	P380050	
		Copper	0.92		ug/L	P380050	
		Lead	0.20	U	ug/L	P380050	
		Nickel	0.57	I	ug/L	P380050	
		Selenium	0.20	I	ug/L	P380050	
		Silver	0.010	U	ug/L	P380050	
		Thallium	0.10	U	ug/L	P380050	
		Hardness	164		mg/L	P379576	
	SM 2340B						

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: L-63 @ SE 59th Blvd.

Collection Date/Time: 02/20/2020 14:55

Field ID: G1SE0029_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2159973	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P379384	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P380075	
		Sulfate	45		mg SO4/L	P380077	
		Color (true)	210		PCU	P379516	
	SM 2320 B-2011	Total Alkalinity	90		mg CaCO3/L	P380173	
	SM 2540 C-2011	TDS	361		mg/L	P379923	
	SM 2540 D-2011	TSS	3	I	mg/L	P379826	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P380176	
2159976	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P379808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P379647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P380155	
	EPA 365.1 Rev. 2.0	Total-P	0.38		mg P/L	P379989	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P379637	
2159979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P379441	
2160001	EPA 200.7 Rev. 4.4	Barium	24.9		ug/L	P379576	
		Calcium	44.4		mg/L	P379576	
		Iron	350		ug/L	P379576	
		Magnesium	12.0		mg/L	P379576	
		Potassium	15.2		mg/L	P379576	
		Sodium	54.4		mg/L	P379576	
		Zinc	5.0	U	ug/L	P379576	
	EPA 200.8 Rev. 5.4	Aluminum	109		ug/L	P380050	
		Antimony	0.059	I	ug/L	P380050	
		Arsenic	0.83		ug/L	P380050	
		Boron**	53.9		ug/L	P380050	
		Cadmium	0.020	U	ug/L	P380050	
		Chromium	0.59	I	ug/L	P380050	
		Copper	0.85		ug/L	P380050	
		Lead	0.20	U	ug/L	P380050	
		Nickel	0.55	I	ug/L	P380050	
		Selenium	0.26	I	ug/L	P380050	
		Silver	0.010	U	ug/L	P380050	
		Thallium	0.10	U	ug/L	P380050	
		Hardness	161		mg/L	P379576	
	SM 2340B						

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P379383

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P379384

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379576

Component	Result	Code	Units
Barium	1.0	U	ug/L
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: P380050

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380074

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380075

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: P380076

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380077

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379807

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379808

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379642

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379645

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379646

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380154

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: P380155

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379988

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379989

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379439

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379441

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

Reference Method: SM 2120 B-2011
Batch ID: P379515

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P379516

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P380173

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

Reference Method: SM 2540 C-2011
Batch ID: P379923

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P379826

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P380176

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P379636

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

Reference Method: SM 5310 B-2011
Batch ID: P379637

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: P379576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	105		P	85 - 115
Calcium	102		P	85 - 115
Iron	105		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	99.3		P	85 - 115
Sodium	98.9		P	85 - 115
Zinc	107		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.4		P	85 - 115
Antimony	90.4		P	85 - 115
Arsenic	95.8		P	85 - 115
Boron	95.2		P	85 - 115
Cadmium	94.2		P	85 - 115
Chromium	105		P	85 - 115
Copper	99.8		P	85 - 115
Lead	92.7		P	85 - 115
Nickel	103		P	85 - 115
Selenium	94.9		P	85 - 115
Silver	95.4		P	85 - 115
Thallium	93.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380075

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380076

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380077

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379807

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379808

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: P379642

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379645

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379646

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

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: P380154

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: P380155

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379988

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379989

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379441

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

Reference Method: SM 2120 B-2011
Batch ID: P379515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.7		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P379516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P380173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P380176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P379636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P379637

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159218	Barium	104		P	80 - 120
2159218	Calcium	104		P	80 - 120
2159218	Iron	107		P	80 - 120
2159218	Magnesium	110		P	80 - 120
2159218	Potassium	100		P	80 - 120
2159218	Sodium	100		P	80 - 120
2159218	Zinc	111		P	80 - 120
2159489	Barium	106	106	P/P	80 - 120
2159489	Iron	110	107	P/P	80 - 120
2159489	Zinc	109	109	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159453	Aluminum	89.7		P	80 - 120
2159453	Antimony	92.0		P	80 - 120
2159453	Arsenic	96.4		P	80 - 120
2159453	Boron	93.1		P	80 - 120
2159453	Cadmium	96.0		P	80 - 120
2159453	Chromium	96.3		P	80 - 120
2159453	Copper	96.5		P	80 - 120
2159453	Lead	90.7		P	80 - 120
2159453	Nickel	97.5		P	80 - 120
2159453	Selenium	95.1		P	80 - 120
2159453	Silver	94.4		P	80 - 120
2159453	Thallium	94.0		P	80 - 120
2159920	Aluminum	91.6	91.4	P/P	80 - 120
2159920	Antimony	93.7	93.3	P/P	80 - 120
2159920	Arsenic	97.8	98.2	P/P	80 - 120
2159920	Boron	97.0	95.6	P/P	80 - 120
2159920	Cadmium	98.0	97.2	P/P	80 - 120
2159920	Chromium	100	101	P/P	80 - 120
2159920	Copper	98.9	99.1	P/P	80 - 120
2159920	Lead	92.8	92.7	P/P	80 - 120
2159920	Nickel	100	101	P/P	80 - 120
2159920	Selenium	96.6	98.2	P/P	80 - 120
2159920	Silver	95.9	94.5	P/P	80 - 120
2159920	Thallium	94.6	94.3	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159821	Chloride	99.3		P	90 - 110
2159917	Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160190	Chloride	99.9		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160192	Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159821	Sulfate	98.8		P	90 - 110
2159917	Sulfate	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160190	Sulfate	101		P	90 - 110
2160192	Sulfate	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159959	Ammonia-N	98.7	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159963	Ammonia-N	98.1	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159623	Kjeldahl Nitrogen	106	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159959	Kjeldahl Nitrogen	100	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2158964	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160057	Kjeldahl Nitrogen	107	108	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159961	NO2NO3-N	95.4	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159964	NO2NO3-N	96.1	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159918	Total-P	110	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159975	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159903	O-Phosphate-P	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160058	O-Phosphate-P	97.3	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P380176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2160190	Fluoride	103	102	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P379636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159830	Organic Carbon	100	98.6	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P379637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159960	Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P379383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160029	Turbidity	13.6	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P379384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159958	Turbidity	0.591	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P379576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159489	Barium	0.587	Spike	P	0 - 20
2159489	Calcium	2.10	Spike	P	0 - 20
2159489	Iron	2.57	Spike	P	0 - 20
2159489	Magnesium	2.18	Spike	P	0 - 20
2159489	Potassium	0.920	Spike	P	0 - 20
2159489	Sodium	1.71	Spike	P	0 - 20
2159489	Zinc	0.336	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159920	Aluminum	0.199	Spike	P	0 - 20
2159920	Antimony	0.439	Spike	P	0 - 20
2159920	Arsenic	0.432	Spike	P	0 - 20
2159920	Boron	1.24	Spike	P	0 - 20
2159920	Cadmium	0.790	Spike	P	0 - 20
2159920	Chromium	0.366	Spike	P	0 - 20
2159920	Copper	0.179	Spike	P	0 - 20
2159920	Lead	0.105	Spike	P	0 - 20
2159920	Nickel	0.609	Spike	P	0 - 20
2159920	Selenium	1.67	Spike	P	0 - 20
2159920	Silver	1.42	Spike	P	0 - 20
2159920	Thallium	0.236	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159821	Chloride	2.01	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160190	Chloride	0.686	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159821	Sulfate	2.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160190	Sulfate	0.355	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159959	Ammonia-N	0.726	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P379808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159963	Ammonia-N	1.50	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159623	Kjeldahl Nitrogen	4.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159959	Kjeldahl Nitrogen	1.56	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2158964	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P379647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160057	Kjeldahl Nitrogen	0.856	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159961	NO2NO3-N	0.769	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159964	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159918	Total-P	2.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P379989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159975	Total-P	0.717	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159903	O-Phosphate-P	0.991	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P379441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160058	O-Phosphate-P	0.279	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P379515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159953	Color (true)	0.0523	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P379516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159957	Color (true)	1.64	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160190	Total Alkalinity	0.713	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P379923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159958	TDS	1.58	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P379826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159958	TSS	6.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P380176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2160190	Fluoride	0.947	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P379636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159830	Organic Carbon	1.81	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P379637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159960	Organic Carbon	1.14	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97729

Included Lab Sample IDs: 2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105
Turbidity	98.0	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97744

Included Lab Sample IDs: 2159965, 2159966, 2159967, 2159968, 2159969, 2159970, 2159977, 2159978, 2159979, 2159982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	94.6	P/P	90 - 110
O-Phosphate-P	97.1	96.8	P/P	90 - 110
O-Phosphate-P	97.7	97.1	P/P	90 - 110
O-Phosphate-P	98.5	97.7	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A97778

Included Lab Sample IDs: 2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115

Reference Method: SM 5310 B-2011

Run ID: A97811

Included Lab Sample IDs: 2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	99.4	100	P/P	90 - 110
Organic Carbon	99.5	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97862

Included Lab Sample IDs: 2159964, 2159974, 2159975, 2159976, 2159981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	102	103	P/P	90 - 110
Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97864

Included Lab Sample IDs: 2159959, 2159960, 2159961, 2159962, 2159963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	97.9	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97876

Included Lab Sample IDs: 2159999, 2160000, 2160001, 2160002

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	104	P/P	90 - 110
Barium	107	109	P/P	90 - 110
Calcium	105	107	P/P	90 - 110
Calcium	98.6	103	P/P	90 - 110
Iron	106	107	P/P	90 - 110
Iron	99.4	103	P/P	90 - 110
Magnesium	105	107	P/P	90 - 110
Magnesium	98.7	103	P/P	90 - 110
Potassium	103	104	P/P	90 - 110
Potassium	97.3	99.8	P/P	90 - 110
Sodium	103	104	P/P	90 - 110
Sodium	97.9	98.4	P/P	90 - 110
Zinc	101	105	P/P	90 - 110
Zinc	108	110	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97886

Included Lab Sample IDs: 2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110
Ammonia-N	101	99.2	P/P	90 - 110
Ammonia-N	98.5	98.9	P/P	90 - 110
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97979

Included Lab Sample IDs: 2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981

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: EPA 365.1 Rev. 2.0

Run ID: A97984

Included Lab Sample IDs: 2159959, 2159960, 2159962, 2159964, 2159974, 2159975, 2159976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	106	P/P	90 - 110
Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97992

Included Lab Sample IDs: 2159961, 2159963, 2159981

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98001

Included Lab Sample IDs: 2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.8	P/P	90 - 110
Chloride	100	100	P/P	90 - 110
Chloride	99.8	100	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98031

Included Lab Sample IDs: 2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A98031

Included Lab Sample IDs: 2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	103	P/P	90 - 110
Fluoride	103	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98050

Included Lab Sample IDs: 2159999, 2160000, 2160001, 2160002

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	95.7	96.5	P/P	90 - 110
Aluminum	97.8	96.0	P/P	90 - 110
Antimony	90.2	90.5	P/P	90 - 110
Antimony	90.3	91.8	P/P	90 - 110
Arsenic	97.3	97.4	P/P	90 - 110
Arsenic	98.0	98.2	P/P	90 - 110
Boron	96.7	92.8	P/P	90 - 110
Boron	97.2	94.9	P/P	90 - 110
Cadmium	94.9	96.0	P/P	90 - 110
Cadmium	95.0	95.1	P/P	90 - 110
Copper	98.0	97.2	P/P	90 - 110
Copper	98.7	98.0	P/P	90 - 110
Lead	94.5	94.3	P/P	90 - 110
Lead	94.7	94.4	P/P	90 - 110
Selenium	95.7	96.2	P/P	90 - 110
Selenium	97.0	95.9	P/P	90 - 110
Silver	92.7	92.6	P/P	90 - 110
Silver	92.8	92.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98087

Included Lab Sample IDs: 2159999, 2160000, 2160001, 2160002

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	100	99.0	P/P	90 - 110
Chromium	102	103	P/P	90 - 110
Nickel	103	104	P/P	90 - 110
Nickel	104	106	P/P	90 - 110
Thallium	92.2	91.6	P/P	90 - 110
Thallium	92.9	93.7	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				
EPA 180.1 Rev. 2.0	Turbidity					13.6	
	Turbidity					0.591	
EPA 200.7 Rev. 4.4	Barium	105	104	106	106		0.587
	Calcium	102	104				2.10
	Iron	105	107	110	107		2.57
	Magnesium	103	110				2.18
	Potassium	99.3	100				0.920
	Sodium	98.9	100				1.71
	Zinc	107	111	109	109		0.336
EPA 200.8 Rev. 5.4	Aluminum	94.4	89.7	91.6	91.4		0.199
	Antimony	90.4	92.0	93.7	93.3		0.439
	Arsenic	95.8	96.4	97.8	98.2		0.432
	Boron	95.2	93.1	97.0	95.6		1.24
	Cadmium	94.2	96.0	98.0	97.2		0.790
	Chromium	105	100	101	96.3		0.366
	Copper	99.8	96.5	98.9	99.1		0.179
	Lead	92.7	90.7	92.8	92.7		0.105
	Nickel	103	100	101	97.5		0.609
	Selenium	94.9	95.1	96.6	98.2		1.67
	Silver	95.4	94.4	95.9	94.5		1.42
	Thallium	93.6	94.6	94.3	94.0		0.236
EPA 300.0 Rev. 2.1	Chloride	99.7	99.3	96.7		2.01	
	Chloride	102	99.9	95.8		0.686	
	Sulfate	99.8	98.8	98.6		2.50	
	Sulfate	102	101	96.0		0.355	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	98.7	99.7			0.726
	Ammonia-N	98.6	98.1	96.4			1.50
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	106	100			4.00
	Kjeldahl Nitrogen	100	100	104			1.56
	Kjeldahl Nitrogen	100	100	101			1.27
	Kjeldahl Nitrogen	101	107	108			0.856
EPA 353.2 Rev. 2.0	NO2NO3-N	100	95.4	96.4			0.769
	NO2NO3-N	100	96.1	95.6			0.499
EPA 365.1 Rev. 2.0	Total-P	108	110	107			2.23
	Total-P	109	107	108			0.717
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	97.0	96.0			0.991
	O-Phosphate-P	99.0	97.3	96.9			0.279
SM 2120 B-2011	Color (true)	99.7				0.0523	
	Color (true)	105				1.64	
SM 2320 B-2011	Total Alkalinity	103				0.713	
SM 2540 C-2011	TDS					1.58	
SM 2540 D-2011	TSS					6.45	
SM 4500 F-C-2011	Fluoride	101	103	102			0.947
SM 5310 B-2011	Organic Carbon	99.4	100	98.6			1.81
	Organic Carbon	99.2	98.8				1.14

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2159999, 2160000, 2160001, 2160002
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2159999, 2160000, 2160001, 2160002
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2159965, 2159966, 2159967, 2159968, 2159969, 2159970, 2159977, 2159978, 2159979, 2159982
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2159999, 2160000, 2160001, 2160002
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2159959, 2159960, 2159961, 2159962, 2159963, 2159964, 2159974, 2159975, 2159976, 2159981

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	02/21/2020			02/21/2020 16:26	Yen Ta	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
EPA 200.7 Rev. 4.4	02/21/2020	02/25/2020 16:40	Elliott D. Healy	02/27/2020 16:18	Vijayalakshmi Reddy	2160002
	02/21/2020	02/25/2020 16:40	Elliott D. Healy	02/27/2020 21:14	Vijayalakshmi Reddy	2159999
	02/21/2020	02/25/2020 16:40	Elliott D. Healy	02/27/2020 21:22	Vijayalakshmi Reddy	2160000
	02/21/2020	02/25/2020 16:40	Elliott D. Healy	02/27/2020 21:30	Vijayalakshmi Reddy	2160001
EPA 200.8 Rev. 5.4	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/06/2020 19:53	Justin Cutchin	2160002
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/06/2020 22:01	Justin Cutchin	2159999
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/06/2020 22:07	Justin Cutchin	2160000
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/06/2020 22:13	Justin Cutchin	2160001
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/09/2020 14:34	Justin Cutchin	2160002
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/09/2020 16:55	Justin Cutchin	2159999
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/09/2020 17:01	Justin Cutchin	2160000
	02/21/2020	03/04/2020 16:05	Elliott D. Healy	03/09/2020 17:06	Justin Cutchin	2160001
EPA 300.0 Rev. 2.1	02/21/2020			03/04/2020 18:15	Lipi Saha	2159953
	02/21/2020			03/04/2020 18:27	Lipi Saha	2159954
	02/21/2020			03/04/2020 19:04	Lipi Saha	2159955
	02/21/2020			03/04/2020 19:16	Lipi Saha	2159956
	02/21/2020			03/04/2020 19:28	Lipi Saha	2159957
	02/21/2020			03/04/2020 19:40	Lipi Saha	2159958
	02/21/2020			03/04/2020 21:41	Lipi Saha	2159971
	02/21/2020			03/04/2020 21:53	Lipi Saha	2159972
	02/21/2020			03/04/2020 22:05	Lipi Saha	2159973
	02/21/2020			03/04/2020 22:17	Lipi Saha	2159980
EPA 350.1 Rev. 2.0	02/21/2020			02/27/2020 13:57	Ping Hua	2159959
	02/21/2020			02/27/2020 14:17	Ping Hua	2159960
	02/21/2020			02/27/2020 14:18	Ping Hua	2159961
	02/21/2020			02/27/2020 14:30	Ping Hua	2159963
	02/21/2020			02/27/2020 14:35	Ping Hua	2159962
	02/21/2020			02/27/2020 14:36	Ping Hua	2159964
	02/21/2020			02/27/2020 14:38	Ping Hua	2159974
	02/21/2020			02/27/2020 14:39	Ping Hua	2159975
	02/21/2020			02/27/2020 14:41	Ping Hua	2159976
	02/21/2020			02/27/2020 15:38	Ping Hua	2159981
EPA 351.2 Rev. 2.0	02/21/2020	02/26/2020 09:45	Sima Feizi	02/27/2020 11:51	Jhamieka S. Greenwood	2159981
	02/21/2020	02/26/2020 09:45	Sima Feizi	02/27/2020 15:19	Jhamieka S. Greenwood	2159959
	02/21/2020	02/26/2020 09:45	Sima Feizi	02/27/2020 15:36	Jhamieka S. Greenwood	2159960
	02/21/2020	02/26/2020 09:45	Sima Feizi	02/27/2020 15:38	Jhamieka S. Greenwood	2159961
	02/21/2020	02/26/2020 09:45	Sima Feizi	02/27/2020 15:39	Jhamieka S. Greenwood	2159962

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 351.2 Rev. 2.0	02/21/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 13:49	Jhamieka S. Greenwood	2159964
	02/21/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 13:54	Jhamieka S. Greenwood	2159974
	02/21/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 13:56	Jhamieka S. Greenwood	2159975
	02/21/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 13:57	Jhamieka S. Greenwood	2159976
	02/21/2020	02/26/2020 11:30	Sima Feizi	02/27/2020 16:20	Jhamieka S. Greenwood	2159963
EPA 353.2 Rev. 2.0	02/21/2020			03/04/2020 09:44	Beverly Y. Sanders	2159961
	02/21/2020			03/04/2020 09:56	Beverly Y. Sanders	2159959
	02/21/2020			03/04/2020 09:57	Beverly Y. Sanders	2159960
	02/21/2020			03/04/2020 09:58	Beverly Y. Sanders	2159962
	02/21/2020			03/04/2020 09:59	Beverly Y. Sanders	2159963
	02/21/2020			03/04/2020 10:06	Beverly Y. Sanders	2159964
	02/21/2020			03/04/2020 10:12	Beverly Y. Sanders	2159974
	02/21/2020			03/04/2020 10:13	Beverly Y. Sanders	2159975
EPA 365.1 Rev. 2.0	02/21/2020			03/04/2020 10:15	Beverly Y. Sanders	2159976
	02/21/2020			03/04/2020 10:16	Beverly Y. Sanders	2159981
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:26	Benjamin T. Nordmann	2159959
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:27	Benjamin T. Nordmann	2159960
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:30	Benjamin T. Nordmann	2159962
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:32	Benjamin T. Nordmann	2159964
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:33	Benjamin T. Nordmann	2159974
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:40	Benjamin T. Nordmann	2159975
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 11:43	Benjamin T. Nordmann	2159976
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:23	Benjamin T. Nordmann	2159961
EPA 365.1 Rev. 2.0 dissolved	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:24	Benjamin T. Nordmann	2159963
	02/21/2020	03/03/2020 13:55	Yen Ta	03/04/2020 15:26	Benjamin T. Nordmann	2159981
	02/21/2020			02/21/2020 19:10	Virginia P. Brown	2159965
	02/21/2020			02/21/2020 19:11	Virginia P. Brown	2159966
	02/21/2020			02/21/2020 19:12	Virginia P. Brown	2159967, 2159968
	02/21/2020			02/21/2020 19:17	Virginia P. Brown	2159969
	02/21/2020			02/21/2020 19:18	Virginia P. Brown	2159970
	02/21/2020			02/21/2020 19:19	Virginia P. Brown	2159977
	02/21/2020			02/21/2020 19:20	Virginia P. Brown	2159978
	02/21/2020			02/21/2020 19:38	Virginia P. Brown	2159979
SM 2120 B-2011	02/21/2020			02/21/2020 19:43	Virginia P. Brown	2159982
	02/21/2020			02/21/2020 17:39	Madeline Funaro	2159953
	02/21/2020			02/21/2020 17:43	Madeline Funaro	2159954
	02/21/2020			02/21/2020 17:44	Madeline Funaro	2159955
	02/21/2020			02/21/2020 17:45	Madeline Funaro	2159956
	02/21/2020			02/21/2020 17:46	Madeline Funaro	2159957
	02/21/2020			02/21/2020 17:47	Madeline Funaro	2159958

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B-2011	02/21/2020			02/21/2020 17:48	Madeline Funaro	2159971
	02/21/2020			02/21/2020 17:50	Madeline Funaro	2159980
	02/21/2020			02/21/2020 18:11	Madeline Funaro	2159972
	02/21/2020			02/21/2020 18:12	Madeline Funaro	2159973
SM 2320 B-2011	02/21/2020			03/05/2020 00:19	Dale L. Simmons	2159953
	02/21/2020			03/05/2020 00:32	Dale L. Simmons	2159956
	02/21/2020			03/05/2020 00:45	Dale L. Simmons	2159958
	02/21/2020			03/05/2020 00:57	Dale L. Simmons	2159971
	02/21/2020			03/05/2020 01:53	Dale L. Simmons	2159957
	02/21/2020			03/05/2020 02:04	Dale L. Simmons	2159955
	02/21/2020			03/05/2020 02:16	Dale L. Simmons	2159954
	02/21/2020			03/05/2020 03:14	Dale L. Simmons	2159972
	02/21/2020			03/05/2020 03:26	Dale L. Simmons	2159973
	02/21/2020			03/05/2020 03:41	Dale L. Simmons	2159980
SM 2340B	02/21/2020			02/27/2020 16:18	Vijayalakshmi Reddy	2160002
	02/21/2020			02/27/2020 21:14	Vijayalakshmi Reddy	2159999
	02/21/2020			02/27/2020 21:22	Vijayalakshmi Reddy	2160000
	02/21/2020			02/27/2020 21:30	Vijayalakshmi Reddy	2160001
SM 2540 C-2011	02/21/2020			02/25/2020 13:41	Yijie Li	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 2540 D-2011	02/21/2020			02/25/2020 13:41	Yijie Li	2159953, 2159954, 2159955, 2159956, 2159957, 2159958, 2159971, 2159972, 2159973, 2159980
SM 4500 F-C-2011	02/21/2020			03/05/2020 00:19	Dale L. Simmons	2159953
	02/21/2020			03/05/2020 00:32	Dale L. Simmons	2159956
	02/21/2020			03/05/2020 00:45	Dale L. Simmons	2159958
	02/21/2020			03/05/2020 00:57	Dale L. Simmons	2159971
	02/21/2020			03/05/2020 01:53	Dale L. Simmons	2159957
	02/21/2020			03/05/2020 02:04	Dale L. Simmons	2159955
	02/21/2020			03/05/2020 02:16	Dale L. Simmons	2159954
	02/21/2020			03/05/2020 03:14	Dale L. Simmons	2159972
	02/21/2020			03/05/2020 03:26	Dale L. Simmons	2159973
	02/21/2020			03/05/2020 03:41	Dale L. Simmons	2159980
SM 5310 B-2011	02/21/2020			02/25/2020 21:45	Lauren Lees	2159959
	02/21/2020			02/25/2020 22:26	Lauren Lees	2159960
	02/21/2020			02/25/2020 23:43	Lauren Lees	2159961
	02/21/2020			02/25/2020 23:56	Lauren Lees	2159962
	02/21/2020			02/26/2020 00:12	Lauren Lees	2159963
	02/21/2020			02/26/2020 00:29	Lauren Lees	2159964
	02/21/2020			02/26/2020 00:42	Lauren Lees	2159975

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	02/21/2020			02/26/2020 00:55	Lauren Lees	2159976
	02/21/2020			02/26/2020 01:08	Lauren Lees	2159981
	02/21/2020			02/26/2020 04:46	Lauren Lees	2159974