

Chemical Analysis Report

SW-DIST-2019-02-12-01

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

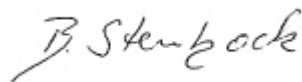
Event Description: **Wire, Hunter & Beulah**
Request ID: **RQ-2019-02-11-29**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 07-MAR-2019 14:48



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 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: LAKE HUNTER NORTH

Collection Date/Time: 02/11/2019 10:30

Field ID: G2SW0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061724	EPA 180.1 Rev. 2.0	Turbidity	20	A	NTU	P358805	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P359449	
		Sulfate	1.7		mg SO4/L	P359453	
	SM 2120 B	Color (true)	11	A	PCU	P358813	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	73		mg/L	P359130	
	SM 2540 D-97	TSS	30		mg/L	P359151	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P359121	
2061730	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P358838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P358861	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P358985	
2061736	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P358815	
2061774	EPA 200.7 Rev. 4.4	Barium	13.8		ug/L	P358870	
		Calcium	22.4		mg/L	P358870	
		Iron	230		ug/L	P358870	
		Magnesium	2.11		mg/L	P358870	
		Potassium	1.3		mg/L	P358870	
		Sodium	5.9		mg/L	P358870	
		Zinc	5.0	U	ug/L	P358870	
		Aluminum	100		ug/L	P358870	
		Antimony	0.26		ug/L	P358870	
		Arsenic	0.54		ug/L	P358870	
		Boron**	162		ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
	EPA 200.8 Rev. 5.4	Chromium	0.40	U	ug/L	P358870	
		Copper	0.62	I	ug/L	P358870	
		Lead	1.06		ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE HUNTER @ CENTER

Collection Date/Time: 02/11/2019 10:20

Field ID: G2SW0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061725	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P358805	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P359449	
		Sulfate	1.7		mg SO4/L	P359453	
		Color (true)	11		PCU	P358813	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	79		mg/L	P359130	
	SM 2540 D-97	TSS	12		mg/L	P359151	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P359121	
2061731	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P358839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P359081	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P358861	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P358985	
2061737	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P358815	
2061775	EPA 200.7 Rev. 4.4	Barium	12.0		ug/L	P358870	
		Calcium	22.2		mg/L	P358870	
		Iron	190		ug/L	P358870	
		Magnesium	2.09		mg/L	P358870	
		Potassium	1.3		mg/L	P358870	
		Sodium	5.8		mg/L	P358870	
		Zinc	5.0	U	ug/L	P358870	
		Aluminum	97		ug/L	P358870	
		Antimony	0.26		ug/L	P358870	
		Arsenic	0.49		ug/L	P358870	
	EPA 200.8 Rev. 5.4	Boron**	155		ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
		Chromium	0.40	U	ug/L	P358870	
		Copper	0.61	I	ug/L	P358870	
		Lead	1.02		ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE BEULAH SW

Collection Date/Time: 02/11/2019 11:20

Field ID: G2SW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061726	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P358806	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P359449	
		Sulfate	2.9		mg SO4/L	P359453	
	SM 2120 B	Color (true)	16		PCU	P358810	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	76		mg/L	P359130	
	SM 2540 D-97	TSS	2	I	mg/L	P359151	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P359121	
2061732	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P358839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P359082	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P358861	
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P358985	
2061738	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P358815	
2061776	EPA 200.7 Rev. 4.4	Barium	11.8		ug/L	P358870	
		Calcium	20.7		mg/L	P358870	
		Iron	65	I	ug/L	P358870	
		Magnesium	1.62		mg/L	P358870	
		Potassium	1.1	I	mg/L	P358870	
		Sodium	2.7		mg/L	P358870	
		Zinc	5.0	U	ug/L	P358870	
		Aluminum	24		ug/L	P358870	
		Antimony	0.18	I	ug/L	P358870	
		Arsenic	0.53		ug/L	P358870	
		Boron**	131		ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
	EPA 200.8 Rev. 5.4	Chromium	0.40	U	ug/L	P358870	
		Copper	0.40	U	ug/L	P358870	
		Lead	0.27	I	ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE WIRE WEST

Collection Date/Time: 02/11/2019 11:55

Field ID: G2SW0056

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061727	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P358806	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P359449	
		Sulfate	0.57	I	mg SO4/L	P359453	
	SM 2120 B	Color (true)	11		PCU	P358810	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	65		mg/L	P359130	
	SM 2540 D-97	TSS	2	I	mg/L	P359151	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P359121	
2061733	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P358839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P359082	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P358861	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P358985	
2061739	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358815	
2061777	EPA 200.7 Rev. 4.4	Barium	18.1		ug/L	P358870	
		Calcium	21.7		mg/L	P358870	
		Iron	67	I	ug/L	P358870	
		Magnesium	1.32		mg/L	P358870	
		Potassium	0.30	U	mg/L	P358870	
		Sodium	2.5		mg/L	P358870	
		Zinc	18	I	ug/L	P358870	
		Aluminum	17	I	ug/L	P358870	
		Antimony	0.25		ug/L	P358870	
		Arsenic	1.12		ug/L	P358870	
		Boron**	21.4		ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
		Chromium	0.40	U	ug/L	P358870	
	EPA 200.8 Rev. 5.4	Copper	0.70	I	ug/L	P358870	
		Lead	6.14		ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 02/21/2019.

Sample Location: WIRE LAKE WEST

Collection Date/Time: 02/11/2019 12:00

Field ID: G2SW0056_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061728	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P358806	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P359449	
		Sulfate	0.57	I	mg SO4/L	P359453	
		Color (true)	11		PCU	P358810	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	60		mg/L	P359130	
	SM 2540 D-97	TSS	2	I	mg/L	P359151	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P359121	
2061734	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P358839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P359082	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P358861	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P358985	
2061740	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P358815	
2061778	EPA 200.7 Rev. 4.4	Barium	18.4		ug/L	P358870	
		Calcium	22.1		mg/L	P358870	
		Iron	67	I	ug/L	P358870	
		Magnesium	1.37		mg/L	P358870	
		Potassium	0.30	U	mg/L	P358870	
		Sodium	2.6		mg/L	P358870	
		Zinc	6.6	I	ug/L	P358870	
	EPA 200.8 Rev. 5.4	Aluminum	13	I	ug/L	P358870	
		Antimony	0.25		ug/L	P358870	
		Arsenic	1.17		ug/L	P358870	
		Boron**	22.3		ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
		Chromium	0.40	U	ug/L	P358870	
		Copper	0.65	I	ug/L	P358870	
		Lead	3.31		ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 02/21/2019.

Sample Location: FB_02112019

Collection Date/Time: 02/11/2019 12:05

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061729	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P358806	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P359449	
		Sulfate	0.20	U	mg SO4/L	P359453	
		Color (true)	2.5	U	PCU	P358811	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P359116	
	SM 2540 C-97	TDS	15	U	mg/L	P359128	
	SM 2540 D-97	TSS	2	U	mg/L	P359149	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P359121	
2061735	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P359058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P358839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P359082	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P358861	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P358985	
2061741	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358815	
2061779	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P358870	
		Calcium	0.075	U	mg/L	P358870	
		Iron	30	U	ug/L	P358870	
		Magnesium	0.040	U	mg/L	P358870	
		Potassium	0.30	U	mg/L	P358870	
		Sodium	0.50	U	mg/L	P358870	
		Zinc	5.0	U	ug/L	P358870	
		Aluminum	5.0	U	ug/L	P358870	
		Antimony	0.050	U	ug/L	P358870	
		Arsenic	0.050	U	ug/L	P358870	
		Boron**	2.0	U	ug/L	P358870	
		Cadmium	0.020	U	ug/L	P358870	
		Chromium	0.40	U	ug/L	P358870	
	EPA 200.8 Rev. 5.4	Copper	0.40	U	ug/L	P358870	
		Lead	0.20	U	ug/L	P358870	
		Nickel	0.50	U	ug/L	P358870	
		Selenium	0.20	U	ug/L	P358870	
		Silver	0.010	U	ug/L	P358870	
		Thallium	0.10	U	ug/L	P358870	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: The result was confirmed on 02/18/2019.

Non-Conformance Report

NCR ID: 7491

Event(s)

SW-DIST-2019-02-12-01

Job(s)

TLH-2019-02-12-51

Sample(s)

2061775

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with nitric acid 02-12-2019 at 11:30.
HNO3 Lot# NA-800070 | Expiration Date: 03/21/19

Authorized by/Date: Joshua Ayres 2/20/2019

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358805

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358806

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358870

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: P358870

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: P359449

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358839

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359082

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358815

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

Reference Method: SM 2120 B
Batch ID: P358810

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P358811

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P358813

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P359116

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P359128

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P359130

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359149

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359151

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358985

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: P358870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	101		P	85 - 115
Iron	106		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	109		P	85 - 115
Sodium	110		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	106		P	80 - 120
Antimony	105		P	80 - 120
Arsenic	112		P	80 - 120
Boron	110		P	80 - 120
Cadmium	107		P	80 - 120
Chromium	110		P	80 - 120
Copper	110		P	80 - 120
Lead	110		P	80 - 120
Nickel	110		P	80 - 120
Selenium	107		P	80 - 120
Silver	107		P	80 - 120
Thallium	107		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359449

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358839

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359082

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: P358861

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: P358815

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

Reference Method: SM 2120 B
Batch ID: P358810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P358811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P358813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P359116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061776	Barium	102	101	P/P	80 - 120
2061776	Calcium	102		P	80 - 120
2061776	Iron	109	108	P/P	80 - 120
2061776	Magnesium	113	112	P/P	80 - 120
2061776	Potassium	107	105	P/P	80 - 120
2061776	Sodium	108	107	P/P	80 - 120
2061776	Zinc	103	102	P/P	80 - 120
2061877	Barium	102		P	80 - 120
2061877	Calcium	97.7		P	80 - 120
2061877	Iron	109		P	80 - 120
2061877	Magnesium	109		P	80 - 120
2061877	Potassium	105		P	80 - 120
2061877	Sodium	104		P	80 - 120
2061877	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061776	Aluminum	105	104	P/P	80 - 120
2061776	Antimony	105	105	P/P	80 - 120
2061776	Arsenic	108	107	P/P	80 - 120
2061776	Boron	110	104	P/P	80 - 120
2061776	Cadmium	109	108	P/P	80 - 120
2061776	Chromium	104	103	P/P	80 - 120
2061776	Copper	107	105	P/P	80 - 120
2061776	Lead	107	106	P/P	80 - 120
2061776	Nickel	105	104	P/P	80 - 120
2061776	Selenium	108	106	P/P	80 - 120
2061776	Silver	108	106	P/P	80 - 120
2061776	Thallium	114	113	P/P	80 - 120
2061877	Aluminum	104		P	80 - 120
2061877	Antimony	105		P	80 - 120
2061877	Arsenic	107		P	80 - 120
2061877	Boron	107		P	80 - 120
2061877	Cadmium	109		P	80 - 120
2061877	Chromium	102		P	80 - 120
2061877	Copper	101		P	80 - 120
2061877	Lead	104		P	80 - 120
2061877	Nickel	103		P	80 - 120
2061877	Selenium	106		P	80 - 120
2061877	Silver	106		P	80 - 120
2061877	Thallium	110		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061675	Chloride	103		P	90 - 110
2061726	Chloride	105		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061675	Sulfate	102		P	90 - 110
2061726	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061730	Ammonia-N	99.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061676	Kjeldahl Nitrogen	109	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061732	Kjeldahl Nitrogen	105	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061637	NO2NO3-N	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061732	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061707	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061739	O-Phosphate-P	98.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061786	Fluoride	92.6	93.1	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P358985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061620	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061724	Turbidity	3.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061812	Turbidity	2.50	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061776	Barium	1.11	Spike	P	0 - 20
2061776	Calcium	1.57	Spike	P	0 - 20
2061776	Iron	0.957	Spike	P	0 - 20
2061776	Magnesium	0.261	Spike	P	0 - 20
2061776	Potassium	1.38	Spike	P	0 - 20
2061776	Sodium	0.341	Spike	P	0 - 20
2061776	Zinc	1.07	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061776	Aluminum	0.941	Spike	P	0 - 20
2061776	Antimony	0.344	Spike	P	0 - 20
2061776	Arsenic	1.13	Spike	P	0 - 20
2061776	Boron	2.55	Spike	P	0 - 20
2061776	Cadmium	0.227	Spike	P	0 - 20
2061776	Chromium	1.18	Spike	P	0 - 20
2061776	Copper	1.56	Spike	P	0 - 20
2061776	Lead	1.05	Spike	P	0 - 20
2061776	Nickel	0.434	Spike	P	0 - 20
2061776	Selenium	1.49	Spike	P	0 - 20
2061776	Silver	1.56	Spike	P	0 - 20
2061776	Thallium	1.35	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	Chloride	0.0456	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	Sulfate	0.0756	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061730	Ammonia-N	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061676	Kjeldahl Nitrogen	3.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061732	Kjeldahl Nitrogen	2.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061637	NO2NO3-N	0.404	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061732	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061707	Total-P	0.0231	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061739	O-Phosphate-P	1.31	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P358810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	Color (true)	1.57	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061857	Color (true)	6.17	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P358813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061724	Color (true)	0.00881	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P359116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061786	Total Alkalinity	0.477	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P359128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061110	TDS	4.29	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P359130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061675	TDS	4.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P359121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061786	Fluoride	0.474	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061620	Organic Carbon	0.488	Spike	P	0 - 20

Quality Assurance Report

Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89377

Included Lab Sample IDs: 2061724, 2061725, 2061726, 2061727, 2061728, 2061729

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

Reference Method: SM 2120 B

Run ID: A89379

Included Lab Sample IDs: 2061724, 2061725, 2061726, 2061727, 2061728, 2061729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115
Color (true)	101	100	P/P	90 - 115
Color (true)	100	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89380

Included Lab Sample IDs: 2061736, 2061737, 2061738, 2061739, 2061740, 2061741

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.5	P/P	90 - 110
O-Phosphate-P	99.5	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89410

Included Lab Sample IDs: 2061730, 2061731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.7	P/P	90 - 110
Total-P	99.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89420

Included Lab Sample IDs: 2061732, 2061733, 2061734, 2061735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89421

Included Lab Sample IDs: 2061730, 2061731, 2061732, 2061733, 2061734, 2061735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	104	99.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A89433

Included Lab Sample IDs: 2061774, 2061775, 2061776, 2061777, 2061778, 2061779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	95 - 105
Barium	101	101	P/P	90 - 110
Barium	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A89433

Included Lab Sample IDs: 2061774, 2061775, 2061776, 2061777, 2061778, 2061779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	98.6	P/P	95 - 105
Calcium	98.6	99.7	P/P	90 - 110
Calcium	99.7	98.8	P/P	90 - 110
Iron	100	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	101	100	P/P	95 - 105
Magnesium	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Magnesium	102	101	P/P	95 - 105
Potassium	98.7	99.3	P/P	90 - 110
Potassium	99.4	99.4	P/P	95 - 105
Potassium	99.4	98.7	P/P	90 - 110
Sodium	101	98.5	P/P	90 - 110
Sodium	98.5	99.2	P/P	90 - 110
Sodium	99.3	101	P/P	95 - 105
Zinc	101	101	P/P	90 - 110
Zinc	101	102	P/P	90 - 110
Zinc	101	101	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A89440

Included Lab Sample IDs: 2061730, 2061731, 2061732, 2061733, 2061734, 2061735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89467

Included Lab Sample IDs: 2061730, 2061731, 2061732, 2061733, 2061734, 2061735

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89473

Included Lab Sample IDs: 2061774, 2061775, 2061776, 2061777, 2061778, 2061779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Aluminum	103	103	P/P	90 - 110
Aluminum	104	101	P/P	90 - 110
Antimony	99.1	100	P/P	90 - 110
Antimony	99.9	99.1	P/P	90 - 110
Antimony	100	101	P/P	90 - 110
Boron	104	105	P/P	90 - 110
Boron	105	104	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Cadmium	102	104	P/P	90 - 110
Chromium	105	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89473

Included Lab Sample IDs: 2061774, 2061775, 2061776, 2061777, 2061778, 2061779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	105	109	P/P	90 - 110
Copper	105	108	P/P	90 - 110
Copper	108	105	P/P	90 - 110
Lead	106	109	P/P	90 - 110
Lead	108	106	P/P	90 - 110
Nickel	105	108	P/P	90 - 110
Nickel	107	105	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Selenium	103	104	P/P	90 - 110
Silver	101	103	P/P	90 - 110
Silver	99.0	101	P/P	90 - 110
Silver	99.7	99.0	P/P	90 - 110
Thallium	100	103	P/P	90 - 110
Thallium	100	98.2	P/P	90 - 110
Thallium	98.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89475

Included Lab Sample IDs: 2061730, 2061731, 2061732, 2061733, 2061734, 2061735

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

Reference Method: SM 2320 B-97

Run ID: A89490

Included Lab Sample IDs: 2061724, 2061725, 2061726, 2061727, 2061728, 2061729

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

Reference Method: SM 4500 F-C-97

Run ID: A89490

Included Lab Sample IDs: 2061724, 2061725, 2061726, 2061727, 2061728, 2061729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.8	94.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89518

Included Lab Sample IDs: 2061774, 2061775, 2061776, 2061777, 2061778, 2061779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	100	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Boron	102	103	P/P	90 - 110
Chromium	99.9	101	P/P	90 - 110
Copper	102	101	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Nickel	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89617

Included Lab Sample IDs: 2061724, 2061725, 2061726, 2061727, 2061728, 2061729

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision	MS
							SMP	
EPA 180.1 Rev. 2.0	Turbidity						3.03	
	Turbidity						2.50	
EPA 200.7 Rev. 4.4	Barium	103	102	101	102			1.11
	Calcium	101	102	97.7				1.57
	Iron	106	109	108	109			0.957
	Magnesium	112	113	112	109			0.261
	Potassium	109	107	105	105			1.38
	Sodium	110	108	107	104			0.341
	Zinc	102	103	102	102			1.07
EPA 200.8 Rev. 5.4	Aluminum	106	105	104	104			0.941
	Antimony	105	105	105	105			0.344
	Arsenic	112	108	107	107			1.13
	Boron	110	110	104	107			2.55
	Cadmium	107	109	108	109			0.227
	Chromium	110	104	103	102			1.18
	Copper	110	107	105	101			1.56
	Lead	110	107	106	104			1.05
	Nickel	110	105	104	103			0.434
	Selenium	107	108	106	106			1.49
	Silver	107	108	106	106			1.56
	Thallium	107	114	113	110			1.35
EPA 300.0 Rev. 2.1	Chloride	105	103	105			0.0456	
	Sulfate	105	102	104			0.0756	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	99.3	101				1.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	109	105				3.08
	Kjeldahl Nitrogen	110	105	109				2.43
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.6	100				0.404
	NO ₂ NO ₃ -N	100	100	100				0.0
EPA 365.1 Rev. 2.0	Total-P	109	103	103				0.0231
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.8	100				1.31
SM 2120 B	Color (true)	100					1.57	
	Color (true)	102					6.17	
	Color (true)	101					0.0088	
SM 2320 B-97	Total Alkalinity	102					0.477	
SM 2540 C-97	TDS						4.29	
	TDS						4.62	
SM 4500 F-C-97	Fluoride	93.6	92.6	93.1				0.474
SM 5310 B-00	Organic Carbon	97.1	101					0.488

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2061774, 2061775, 2061776, 2061777, 2061778, 2061779
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2061774, 2061775, 2061776, 2061777, 2061778, 2061779
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2061730, 2061731, 2061732, 2061733, 2061734, 2061735

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2061730, 2061731, 2061732, 2061733, 2061734, 2061735
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2061730, 2061731, 2061732, 2061733, 2061734, 2061735
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2061730, 2061731, 2061732, 2061733, 2061734, 2061735
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2061736, 2061737, 2061738, 2061739, 2061740, 2061741
SM 2120 B / E31780	True Color measured at 450 nm	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2061730, 2061731, 2061732, 2061733, 2061734, 2061735

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	02/12/2019			02/12/2019 16:03	Adrian Shelby	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
EPA 200.7 Rev. 4.4	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 13:59	Betina Topolski	2061779
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 15:04	Betina Topolski	2061774
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 15:09	Betina Topolski	2061775
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 15:14	Betina Topolski	2061776
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 15:50	Betina Topolski	2061777
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 15:56	Betina Topolski	2061778
EPA 200.8 Rev. 5.4	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 01:28	Allison Taylor	2061779
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 03:32	Allison Taylor	2061774
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 03:41	Allison Taylor	2061775
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 05:26	Allison Taylor	2061776
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 05:54	Allison Taylor	2061777
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/16/2019 06:04	Allison Taylor	2061778
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 14:55	Allison Taylor	2061779
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 15:29	Allison Taylor	2061774
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 15:57	Allison Taylor	2061775
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 16:04	Allison Taylor	2061776
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 16:24	Allison Taylor	2061777
	02/12/2019	02/13/2019 16:35	Elliott D. Healy	02/19/2019 16:31	Allison Taylor	2061778
EPA 300.0 Rev. 2.1	02/12/2019			02/22/2019 23:55	Lipi Saha	2061726
	02/12/2019			02/23/2019 02:23	Lipi Saha	2061724
	02/12/2019			02/23/2019 02:37	Lipi Saha	2061725
	02/12/2019			02/23/2019 02:52	Lipi Saha	2061727
	02/12/2019			02/23/2019 03:07	Lipi Saha	2061728
	02/12/2019			02/23/2019 03:22	Lipi Saha	2061729
EPA 350.1 Rev. 2.0	02/12/2019			02/15/2019 12:46	Ping Hua	2061730
	02/12/2019			02/15/2019 12:58	Ping Hua	2061731
	02/12/2019			02/15/2019 13:00	Ping Hua	2061732
	02/12/2019			02/15/2019 13:01	Ping Hua	2061733
	02/12/2019			02/15/2019 13:03	Ping Hua	2061734
	02/12/2019			02/15/2019 13:09	Ping Hua	2061735
EPA 351.2 Rev. 2.0	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:03	Joseph Suarez	2061730
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:08	Joseph Suarez	2061731
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:09	Joseph Suarez	2061732
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:14	Joseph Suarez	2061733
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:16	Joseph Suarez	2061734
	02/12/2019	02/13/2019 12:15	Adrian Shelby	02/14/2019 13:20	Joseph Suarez	2061735
EPA 353.2 Rev. 2.0	02/12/2019			02/18/2019 12:27	Beverly Y. Sanders	2061730
	02/12/2019			02/18/2019 12:28	Beverly Y. Sanders	2061731

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	02/12/2019			02/18/2019 12:35	Beverly Y. Sanders	2061732
	02/12/2019			02/18/2019 12:41	Beverly Y. Sanders	2061733
	02/12/2019			02/18/2019 12:42	Beverly Y. Sanders	2061734
	02/12/2019			02/18/2019 12:44	Beverly Y. Sanders	2061735
EPA 365.1 Rev. 2.0	02/12/2019	02/13/2019 12:40	Sima Feizi	02/13/2019 19:20	Rosalyn Ballman	2061730
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/13/2019 19:24	Rosalyn Ballman	2061731
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:20	Rosalyn Ballman	2061732
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:21	Rosalyn Ballman	2061733
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:22	Rosalyn Ballman	2061734
	02/12/2019	02/13/2019 12:40	Sima Feizi	02/14/2019 13:23	Rosalyn Ballman	2061735
EPA 365.1 Rev. 2.0 dissolved	02/12/2019			02/12/2019 15:29	Jhamieka S. Greenwood	2061739
	02/12/2019			02/12/2019 15:48	Jhamieka S. Greenwood	2061741
	02/12/2019			02/12/2019 15:49	Jhamieka S. Greenwood	2061740
	02/12/2019			02/12/2019 15:53	Jhamieka S. Greenwood	2061736
	02/12/2019			02/12/2019 15:54	Jhamieka S. Greenwood	2061737
	02/12/2019			02/12/2019 15:55	Jhamieka S. Greenwood	2061738
SM 2120 B	02/12/2019			02/12/2019 16:19	Chelsea Hernandez	2061726
	02/12/2019			02/12/2019 16:20	Chelsea Hernandez	2061727
	02/12/2019			02/12/2019 16:21	Chelsea Hernandez	2061728
	02/12/2019			02/12/2019 16:25	Chelsea Hernandez	2061729
	02/12/2019			02/12/2019 16:50	Chelsea Hernandez	2061724
	02/12/2019			02/12/2019 16:51	Chelsea Hernandez	2061725
SM 2320 B-97	02/12/2019			02/16/2019 16:09	Dale L. Simmons	2061724
	02/12/2019			02/16/2019 16:21	Dale L. Simmons	2061725
	02/12/2019			02/16/2019 16:34	Dale L. Simmons	2061726
	02/12/2019			02/16/2019 16:45	Dale L. Simmons	2061727
	02/12/2019			02/16/2019 16:57	Dale L. Simmons	2061728
	02/12/2019			02/16/2019 17:11	Dale L. Simmons	2061729
SM 2540 C-97	02/12/2019			02/13/2019 15:22	Yijie Li	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 2540 D-97	02/12/2019			02/13/2019 15:22	Yijie Li	2061724, 2061725, 2061726, 2061727, 2061728, 2061729
SM 4500 F-C-97	02/12/2019			02/16/2019 16:09	Dale L. Simmons	2061724
	02/12/2019			02/16/2019 16:21	Dale L. Simmons	2061725
	02/12/2019			02/16/2019 16:34	Dale L. Simmons	2061726
	02/12/2019			02/16/2019 16:45	Dale L. Simmons	2061727
	02/12/2019			02/16/2019 16:57	Dale L. Simmons	2061728
	02/12/2019			02/16/2019 17:11	Dale L. Simmons	2061729
SM 5310 B-00	02/12/2019			02/14/2019 19:36	Chelsea Hernandez	2061730
	02/12/2019			02/14/2019 19:50	Chelsea Hernandez	2061731

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	02/12/2019			02/14/2019 20:02	Chelsea Hernandez	2061732
	02/12/2019			02/14/2019 20:15	Chelsea Hernandez	2061733
	02/12/2019			02/14/2019 20:27	Chelsea Hernandez	2061734
	02/12/2019			02/14/2019 20:39	Chelsea Hernandez	2061735