

Chemical Analysis Report

NE-DIST-2019-01-16-01

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

Event Description: **LSJR South West**
Request ID: **RQ-2019-01-14-24**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 04-FEB-2019 14:37



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: SWIMMING PEN CR @ SR220

Collection Date/Time: 01/15/2019 09:35

Field ID: 20030191

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054512	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	410		mg Cl/L	P357508	
		Sulfate	71		mg SO4/L	P357509	
		Color (true)	120		PCU	P357369	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	838		mg/L	P357767	
	SM 2540 D-97	TSS	3	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P357664	
2054516	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P357435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P357497	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P357495	
2054520	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P357376	
2054554	EPA 200.7 Rev. 4.4	Barium	12.8		ug/L	P357375	
		Calcium	31.7		mg/L	P357375	
		Iron	170		ug/L	P357375	
		Magnesium	30.0		mg/L	P357375	
		Potassium	9.0		mg/L	P357375	
		Sodium	223		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	52		ug/L	P357375	
		Antimony	0.093	I	ug/L	P357375	
		Arsenic	2.02		ug/L	P357375	
		Boron**	121		ug/L	P357375	
		Cadmium	0.116		ug/L	P357375	
		Chromium	0.40	U	ug/L	P357375	
		Copper	1.35		ug/L	P357789	
		Lead	0.35	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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: SWIMMING PEN CREEK AT EAGLES CREEK DR.

Collection Date/Time: 01/15/2019 10:10

Field ID: G2NE1188

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054513	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P357508	
		Sulfate	9.3		mg SO4/L	P357509	
	SM 2120 B	Color (true)	51	A	PCU	P357369	
	SM 2320 B-97	Total Alkalinity	72	A	mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	136	A	mg/L	P357767	
	SM 2540 D-97	TSS	3	IA	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P357664	
2054517	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P357435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P357497	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P357495	
2054521	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P357376	
2054555	EPA 200.7 Rev. 4.4	Barium	22.9		ug/L	P357375	
		Calcium	28.5		mg/L	P357375	
		Iron	710		ug/L	P357375	
		Magnesium	2.91		mg/L	P357375	
		Potassium	2.0		mg/L	P357375	
		Sodium	14.7		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	74		ug/L	P357375	
		Antimony	0.11	I	ug/L	P357375	
		Arsenic	0.65		ug/L	P357375	
		Boron**	30.2		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.40	U	ug/L	P357375	
		Copper	4.56		ug/L	P357789	
		Lead	0.20	U	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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: BULL CR NE CROSSING CR 215

Collection Date/Time: 01/15/2019 10:50

Field ID: 20030487

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054514	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P357508	
		Sulfate	2.4		mg SO4/L	P357509	
		Color (true)	200		PCU	P357369	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	77		mg/L	P357767	
	SM 2540 D-97	TSS	2	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P357664	
2054518	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P357435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.097		mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P357497	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P357495	
2054522	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P357376	
2054556	EPA 200.7 Rev. 4.4	Barium	7.3		ug/L	P357375	
		Calcium	6.98		mg/L	P357375	
		Iron	3.48E+03		ug/L	P357375	
		Magnesium	2.38		mg/L	P357375	
		Potassium	0.35	I	mg/L	P357375	
		Sodium	6.6		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	321		ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.38		ug/L	P357375	
		Boron**	14.2		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.64	I	ug/L	P357375	
		Copper	0.70	I	ug/L	P357789	
		Lead	0.47		ug/L	P357375	
		Nickel	0.52	I	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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: BULL CR CROSSING CR 215

Collection Date/Time: 01/15/2019 11:00

Field ID: FB 01152019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054530	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P357508	
		Sulfate	0.20	U	mg SO4/L	P357509	
		Color (true)	2.5	U	PCU	P357369	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P357949	
	SM 2540 C-97	TDS	15	U	mg/L	P357763	
	SM 2540 D-97	TSS	2	U	mg/L	P357860	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357664	
2054531	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P357437	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P357537	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P357495	
2054532	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357376	
2054558	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P357375	
		Calcium	0.075	U	mg/L	P357375	
		Iron	30	U	ug/L	P357375	
		Magnesium	0.040	U	mg/L	P357375	
		Potassium	0.30	U	mg/L	P357375	
		Sodium	0.50	U	mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
		Aluminum	5.0	U	ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.050	U	ug/L	P357375	
		Boron**	2.0	U	ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.40	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Copper	0.40	U	ug/L	P357375	
		Lead	0.20	U	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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: UNNAMED BRANCH AT BRIT PLACE

Collection Date/Time: 01/15/2019 11:40

Field ID: G2NE1140

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054515	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P357508	
		Sulfate	8.8		mg SO4/L	P357509	
		Color (true)	160		PCU	P357369	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	54		mg/L	P357767	
	SM 2540 D-97	TSS	2	U	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P357664	
2054519	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P357435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P357537	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P357495	
2054523	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.26		mg P/L	P357376	
2054557	EPA 200.7 Rev. 4.4	Barium	4.5		ug/L	P357375	
		Calcium	3.81		mg/L	P357375	
		Iron	380		ug/L	P357375	
		Magnesium	1.10		mg/L	P357375	
		Potassium	0.30	U	mg/L	P357375	
		Sodium	4.2		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	329		ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.18	I	ug/L	P357375	
		Boron**	12.3		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.48	I	ug/L	P357375	
		Copper	0.40	U	ug/L	P357375	
		Lead	0.20	U	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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: MILL CR @ SR 16

Collection Date/Time: 01/15/2019 13:20

Field ID: 20030474

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054524	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	73		mg Cl/L	P357508	
		Sulfate	74		mg SO4/L	P357509	
		Color (true)	110		PCU	P357369	
	SM 2320 B-97	Total Alkalinity	112		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	361		mg/L	P357767	
	SM 2540 D-97	TSS	2	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P357664	
2054526	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P357435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.62		mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P357537	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P357495	
2054528	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.078		mg P/L	P357376	

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: MILL CR @ SR 16

Collection Date/Time: 01/15/2019 13:25

Field ID: 20030474 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054525	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P357372	
	EPA 300.0 Rev. 2.1	Chloride	73		mg Cl/L	P357508	
		Sulfate	74		mg SO4/L	P357509	
	SM 2120 B	Color (true)	110		PCU	P357369	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	375		mg/L	P357768	
	SM 2540 D-97	TSS	3	I	mg/L	P357864	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P357664	
2054527	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P357491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P357435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.62		mg N/L	P357550	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P357537	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P357495	
2054529	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.078		mg P/L	P357376	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357372

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

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: P357375

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 200.8 Rev. 5.4
Batch ID: P357789

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

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: P357491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357435

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357550

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357497

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357537

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357376

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

Reference Method: SM 2120 B
Batch ID: P357369

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357660

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P357949

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

Reference Method: SM 2540 C-97
Batch ID: P357763

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P357767

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P357768

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357860

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357863

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357864

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357495

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: P357375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	107		P	85 - 115
Iron	107		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	105		P	85 - 115
Sodium	102		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.1		P	85 - 115
Antimony	97.9		P	85 - 115
Arsenic	103		P	85 - 115
Boron	103		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	104		P	85 - 115
Copper	101		P	85 - 115
Lead	98.5		P	85 - 115
Nickel	103		P	85 - 115
Selenium	99.7		P	85 - 115
Silver	101		P	85 - 115
Thallium	97.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	98.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.9		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357435

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357550

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357497

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357537

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P357369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.8		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P357660

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

Reference Method: SM 2320 B-97
Batch ID: P357949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357495

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054535	Barium	102		P	80 - 120
2054535	Calcium	105		P	80 - 120
2054535	Iron	108		P	80 - 120
2054535	Magnesium	110		P	80 - 120
2054535	Potassium	104		P	80 - 120
2054535	Sodium	102		P	80 - 120
2054535	Zinc	104		P	80 - 120
2054557	Barium	105	106	P/P	80 - 120
2054557	Calcium	103	104	P/P	80 - 120
2054557	Iron	107	108	P/P	80 - 120
2054557	Magnesium	110	110	P/P	80 - 120
2054557	Potassium	107	107	P/P	80 - 120
2054557	Sodium	99.9		P	80 - 120
2054557	Zinc	104	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054535	Aluminum	97.7		P	80 - 120
2054535	Antimony	102		P	80 - 120
2054535	Arsenic	108		P	80 - 120
2054535	Boron	101		P	80 - 120
2054535	Cadmium	106		P	80 - 120
2054535	Chromium	103		P	80 - 120
2054535	Copper	101		P	80 - 120
2054535	Lead	99.8		P	80 - 120
2054535	Nickel	103		P	80 - 120
2054535	Selenium	106		P	80 - 120
2054535	Silver	99.4		P	80 - 120
2054535	Thallium	102		P	80 - 120
2054557	Aluminum	96.9	98.0	P/P	80 - 120
2054557	Antimony	101	101	P/P	80 - 120
2054557	Arsenic	105	107	P/P	80 - 120
2054557	Boron	98.3	99.4	P/P	80 - 120
2054557	Cadmium	106	106	P/P	80 - 120
2054557	Chromium	104	104	P/P	80 - 120
2054557	Copper	101	102	P/P	80 - 120
2054557	Lead	99.4	100	P/P	80 - 120
2054557	Nickel	102	104	P/P	80 - 120
2054557	Selenium	104	106	P/P	80 - 120
2054557	Silver	99.2	99.4	P/P	80 - 120
2054557	Thallium	102	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054090	Copper	100	102	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054507	Chloride	97.0		P	90 - 110
2054583	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054507	Sulfate	101		P	90 - 110
2054583	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054508	Ammonia-N	97.5	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054526	Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054611	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054517	NO2NO3-N	99.0	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054508	Total-P	97.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054612	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054521	O-Phosphate-P	93.4	95.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054513	Fluoride	97.8	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054508	Organic Carbon	100	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054507	Turbidity	2.36	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054557	Barium	1.37	Spike	P	0 - 20
2054557	Calcium	0.627	Spike	P	0 - 20
2054557	Iron	0.637	Spike	P	0 - 20
2054557	Magnesium	0.113	Spike	P	0 - 20
2054557	Potassium	0.153	Spike	P	0 - 20
2054557	Sodium	0.0975	Spike	P	0 - 20
2054557	Zinc	0.937	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054557	Aluminum	0.813	Spike	P	0 - 20
2054557	Antimony	0.627	Spike	P	0 - 20
2054557	Arsenic	1.24	Spike	P	0 - 20
2054557	Boron	0.980	Spike	P	0 - 20
2054557	Cadmium	0.240	Spike	P	0 - 20
2054557	Chromium	0.228	Spike	P	0 - 20
2054557	Copper	1.29	Spike	P	0 - 20
2054557	Lead	0.843	Spike	P	0 - 20
2054557	Nickel	1.91	Spike	P	0 - 20
2054557	Selenium	2.17	Spike	P	0 - 20
2054557	Silver	0.224	Spike	P	0 - 20
2054557	Thallium	1.13	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054090	Copper	1.74	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054507	Chloride	0.0586	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054507	Sulfate	0.934	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054508	Ammonia-N	1.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054526	Kjeldahl Nitrogen	1.74	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054611	Kjeldahl Nitrogen	0.192	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054517	NO2NO3-N	0.359	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054508	Total-P	3.29	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054612	Total-P	1.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054521	O-Phosphate-P	1.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P357369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Color (true)	0.892	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Total Alkalinity	0.0932	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P357949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2055317	Total Alkalinity	0.0891	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054040	TDS	6.01	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P357767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	TDS	2.21	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P357768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054583	TDS	0.851	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P357495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054508	Organic Carbon	0.942	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: SM 2120 B

Run ID: A88852

Included Lab Sample IDs: 2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88853

Included Lab Sample IDs: 2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88854

Included Lab Sample IDs: 2054520, 2054521, 2054522, 2054523, 2054528, 2054529, 2054532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.8	P/P	90 - 110
O-Phosphate-P	99.7	98.6	P/P	90 - 110
O-Phosphate-P	99.8	99.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A88887

Included Lab Sample IDs: 2054554, 2054555, 2054556, 2054557, 2054558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	103	P/P	90 - 110
Barium	102	101	P/P	90 - 110
Barium	99.6	102	P/P	90 - 110
Calcium	101	102	P/P	90 - 110
Calcium	102	103	P/P	90 - 110
Calcium	99.4	101	P/P	90 - 110
Iron	100	102	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	100	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	98.8	99.6	P/P	90 - 110
Potassium	99.2	98.8	P/P	90 - 110
Potassium	99.4	99.2	P/P	90 - 110
Sodium	100	98.9	P/P	90 - 110
Sodium	98.9	98.9	P/P	90 - 110
Sodium	98.9	99.6	P/P	90 - 110
Zinc	102	104	P/P	90 - 110
Zinc	104	102	P/P	90 - 110
Zinc	99.0	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88889

Included Lab Sample IDs: 2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88889

Included Lab Sample IDs: 2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

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

Reference Method: SM 5310 B-00

Run ID: A88890

Included Lab Sample IDs: 2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88896

Included Lab Sample IDs: 2054558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Antimony	99.7	101	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Cadmium	101	103	P/P	90 - 110
Chromium	105	105	P/P	90 - 110
Copper	104	103	P/P	90 - 110
Lead	102	103	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Thallium	95.0	93.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88900

Included Lab Sample IDs: 2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88908

Included Lab Sample IDs: 2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	103	P/P	90 - 110
Kjeldahl Nitrogen	103	105	P/P	90 - 110
Kjeldahl Nitrogen	105	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88910

Included Lab Sample IDs: 2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88944

Included Lab Sample IDs: 2054516, 2054518, 2054519, 2054526, 2054527

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

Reference Method: SM 2320 B-97

Run ID: A88947

Included Lab Sample IDs: 2054512, 2054513, 2054514, 2054515, 2054524, 2054525

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

Reference Method: SM 4500 F-C-97

Run ID: A88947

Included Lab Sample IDs: 2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88950

Included Lab Sample IDs: 2054517, 2054531

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88956

Included Lab Sample IDs: 2054554, 2054555, 2054556, 2054557, 2054558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	98.4	P/P	90 - 110
Antimony	102	104	P/P	90 - 110
Arsenic	104	104	P/P	90 - 110
Boron	101	99.8	P/P	90 - 110
Boron	104	101	P/P	90 - 110
Cadmium	103	105	P/P	90 - 110
Chromium	104	105	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Selenium	104	105	P/P	90 - 110
Silver	98.3	98.5	P/P	90 - 110
Silver	98.5	99.2	P/P	90 - 110
Thallium	93.9	95.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89030

Included Lab Sample IDs: 2054554, 2054555, 2054556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89030

Included Lab Sample IDs: 2054554, 2054555, 2054556

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89055

Included Lab Sample IDs: 2054554, 2054555, 2054556, 2054557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	98.6	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89058

Included Lab Sample IDs: 2054530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.2	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					2.36	
EPA 200.7 Rev. 4.4	Barium	104	102	105	106		1.37
	Calcium	107	105	103	104		0.627
	Iron	107	108	107	108		0.637
	Magnesium	110	110	110	110		0.113
	Potassium	105	104	107	107		0.153
	Sodium	102	102	99.9			0.0975
	Zinc	102	104	104	105		0.937
EPA 200.8 Rev. 5.4	Aluminum	99.1	97.7	96.9	98.0		0.813
	Antimony	97.9	102	101	101		0.627
	Arsenic	103	108	105	107		1.24
	Boron	103	101	98.3	99.4		0.980
	Cadmium	103	106	106	106		0.240
	Chromium	104	103	104	104		0.228
	Copper	101	101	101	102		1.29
	Copper	98.1	100	102			1.74
	Lead	98.5	99.8	99.4	100		0.843
	Nickel	103	103	102	104		1.91
	Selenium	99.7	106	104	106		2.17
	Silver	101	99.4	99.2	99.4		0.224
	Thallium	97.0	102	102	103		1.13
EPA 300.0 Rev. 2.1	Chloride	100	97.0	99.6		0.0586	
	Sulfate	103	101	101		0.934	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	97.5	99.2			1.07
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	106	103			1.74
	Kjeldahl Nitrogen	100	107	107			0.192
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.0	98.6			0.359
EPA 365.1 Rev. 2.0	Total-P	104	97.0	101			3.29
	Total-P	102	103	101			1.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	93.4	95.1			1.58
SM 2120 B	Color (true)	98.8				0.892	
SM 2320 B-97	Total Alkalinity	102				0.0932	
	Total Alkalinity	100				0.0891	
SM 2540 C-97	TDS					6.01	
	TDS					2.21	
	TDS					0.851	
SM 4500 F-C-97	Fluoride	98.3	97.8	97.8			0.0
SM 5310 B-00	Organic Carbon	98.6	100	98.6			0.942

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2054554, 2054555, 2054556, 2054557, 2054558
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2054554, 2054555, 2054556, 2054557, 2054558
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2054520, 2054521, 2054522, 2054523, 2054528, 2054529, 2054532
SM 2120 B / E31780	True Color measured at 450 nm	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2054516, 2054517, 2054518, 2054519, 2054526, 2054527, 2054531

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	01/16/2019			01/16/2019 16:37	Megan Treadwell	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
EPA 200.7 Rev. 4.4	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 17:27	Betina Topolski	2054558
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 19:34	Betina Topolski	2054554
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 19:42	Betina Topolski	2054554
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 20:15	Betina Topolski	2054555
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 20:22	Betina Topolski	2054556
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 20:29	Betina Topolski	2054557
EPA 200.8 Rev. 5.4	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/18/2019 01:56	Allison Taylor	2054558
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 21:19	Allison Taylor	2054558
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 23:42	Allison Taylor	2054554
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 23:52	Allison Taylor	2054555
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/23/2019 00:01	Allison Taylor	2054556
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/23/2019 00:11	Allison Taylor	2054557
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/28/2019 13:38	Allison Taylor	2054554
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/28/2019 13:44	Allison Taylor	2054555
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/28/2019 13:50	Allison Taylor	2054556
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/28/2019 13:57	Allison Taylor	2054557
	01/16/2019	01/24/2019 15:20	Elliott D. Healy	01/25/2019 16:45	Allison Taylor	2054554
	01/16/2019	01/24/2019 15:20	Elliott D. Healy	01/25/2019 16:51	Allison Taylor	2054555
	01/16/2019	01/24/2019 15:20	Elliott D. Healy	01/25/2019 16:58	Allison Taylor	2054556
EPA 300.0 Rev. 2.1	01/16/2019			01/17/2019 19:54	Lipi Saha	2054512
	01/16/2019			01/17/2019 20:07	Lipi Saha	2054513
	01/16/2019			01/17/2019 20:19	Lipi Saha	2054514
	01/16/2019			01/17/2019 20:31	Lipi Saha	2054515
	01/16/2019			01/17/2019 20:44	Lipi Saha	2054524
	01/16/2019			01/17/2019 20:56	Lipi Saha	2054525
	01/16/2019			01/17/2019 21:08	Lipi Saha	2054530
EPA 350.1 Rev. 2.0	01/16/2019			01/17/2019 11:23	Ping Hua	2054516
	01/16/2019			01/17/2019 11:24	Ping Hua	2054517
	01/16/2019			01/17/2019 11:26	Ping Hua	2054518
	01/16/2019			01/17/2019 11:27	Ping Hua	2054519
	01/16/2019			01/17/2019 11:36	Ping Hua	2054526
	01/16/2019			01/17/2019 11:38	Ping Hua	2054527
	01/16/2019			01/17/2019 11:39	Ping Hua	2054531
EPA 351.2 Rev. 2.0	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 12:23	Joseph Suarez	2054516
	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 12:25	Joseph Suarez	2054517
	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 12:30	Joseph Suarez	2054518
	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 12:31	Joseph Suarez	2054519
	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 12:33	Joseph Suarez	2054526

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	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 12:37	Joseph Suarez	2054527
	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 13:01	Joseph Suarez	2054531
EPA 353.2 Rev. 2.0	01/16/2019			01/18/2019 10:55	Beverly Y. Sanders	2054517
	01/16/2019			01/18/2019 11:02	Beverly Y. Sanders	2054516
	01/16/2019			01/18/2019 11:03	Beverly Y. Sanders	2054518
	01/16/2019			01/18/2019 11:04	Beverly Y. Sanders	2054519
	01/16/2019			01/18/2019 11:06	Beverly Y. Sanders	2054526
	01/16/2019			01/18/2019 11:07	Beverly Y. Sanders	2054527
	01/16/2019			01/18/2019 11:08	Beverly Y. Sanders	2054531
	01/16/2019			01/18/2019 11:08	Beverly Y. Sanders	2054531
EPA 365.1 Rev. 2.0	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 13:32	Rosalyn Ballman	2054516
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 13:35	Rosalyn Ballman	2054518
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:02	Rosalyn Ballman	2054519
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:03	Rosalyn Ballman	2054526
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:04	Rosalyn Ballman	2054527
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 17:08	Rosalyn Ballman	2054517
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 17:25	Rosalyn Ballman	2054531
EPA 365.1 Rev. 2.0 dissolved	01/16/2019			01/16/2019 15:37	Jhamieka S. Greenwood	2054521
	01/16/2019			01/16/2019 15:53	Jhamieka S. Greenwood	2054528, 2054532
	01/16/2019			01/16/2019 15:54	Jhamieka S. Greenwood	2054529
	01/16/2019			01/16/2019 15:55	Jhamieka S. Greenwood	2054520
	01/16/2019			01/16/2019 16:01	Jhamieka S. Greenwood	2054523
	01/16/2019			01/16/2019 16:02	Jhamieka S. Greenwood	2054522
SM 2120 B	01/16/2019			01/16/2019 14:55	Chelsea Hernandez	2054512
	01/16/2019			01/16/2019 14:57	Chelsea Hernandez	2054513
	01/16/2019			01/16/2019 14:59	Chelsea Hernandez	2054524
	01/16/2019			01/16/2019 15:00	Chelsea Hernandez	2054525, 2054530
	01/16/2019			01/16/2019 15:22	Chelsea Hernandez	2054514
	01/16/2019			01/16/2019 15:23	Chelsea Hernandez	2054515
SM 2320 B-97	01/16/2019			01/21/2019 22:48	Dale L. Simmons	2054513
	01/16/2019			01/21/2019 23:28	Dale L. Simmons	2054514
	01/16/2019			01/21/2019 23:38	Dale L. Simmons	2054515
	01/16/2019			01/21/2019 23:51	Dale L. Simmons	2054524
	01/16/2019			01/22/2019 00:04	Dale L. Simmons	2054525
	01/16/2019			01/22/2019 02:46	Dale L. Simmons	2054512
	01/16/2019			01/24/2019 01:09	Dale L. Simmons	2054530
SM 2540 C-97	01/16/2019			01/17/2019 13:55	Yijie Li	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 2540 D-97	01/16/2019			01/17/2019 13:55	Yijie Li	2054512, 2054513, 2054514, 2054515, 2054524, 2054525, 2054530
SM 4500 F-C-97	01/16/2019			01/21/2019 22:37	Dale L. Simmons	2054513

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	01/16/2019			01/21/2019 23:28	Dale L. Simmons	2054514
	01/16/2019			01/21/2019 23:38	Dale L. Simmons	2054515
	01/16/2019			01/21/2019 23:51	Dale L. Simmons	2054524
	01/16/2019			01/22/2019 00:04	Dale L. Simmons	2054525
	01/16/2019			01/22/2019 00:18	Dale L. Simmons	2054530
	01/16/2019			01/22/2019 02:46	Dale L. Simmons	2054512
SM 5310 B-00	01/16/2019			01/17/2019 15:17	Megan Treadwell	2054516
	01/16/2019			01/17/2019 15:53	Megan Treadwell	2054517
	01/16/2019			01/17/2019 16:30	Megan Treadwell	2054518
	01/16/2019			01/17/2019 16:42	Megan Treadwell	2054519
	01/16/2019			01/17/2019 16:54	Megan Treadwell	2054526
	01/16/2019			01/17/2019 17:11	Megan Treadwell	2054527
	01/16/2019			01/17/2019 17:24	Megan Treadwell	2054531