

Chemical Analysis Report

NW-DIST-2019-10-15-01

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

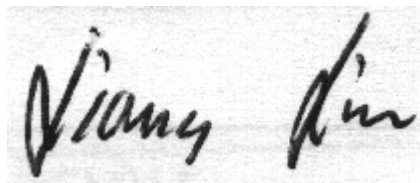
Event Description: **Eglin Run West**
Request ID: **RQ-2019-10-14-22**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-NOV-2019 14:13

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Juniper Creek upstream of Eglin Rd 221

Collection Date/Time: 10/14/2019 10:00

Field ID: G3NW0170

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127921	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P372504	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P372761	
		Sulfate	0.70		mg SO4/L	P372765	
		Color (true)	6.5		PCU	P372526	
	SM 2120 B	Total Alkalinity	1.1	I	mg CaCO3/L	P372877	
	SM 2540 C-97	TDS	15	U	mg/L	P373300	
	SM 2540 D-97	TSS	3	I	mg/L	P373255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P372881	
2127922	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P372776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P372578	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P372731	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P372580	
	SM 5310 B-00	Organic Carbon	0.71	I	mg C/L	P372778	
2127923	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372516	
2127954	EPA 200.7 Rev. 4.4	Barium	8.2		ug/L	P372597	
		Calcium	0.45		mg/L	P372597	
		Iron	33	I	ug/L	P372597	
		Magnesium	0.38		mg/L	P372597	
		Potassium	0.30	U	mg/L	P372597	
		Sodium	1.6	I	mg/L	P372597	
		Zinc	5.0	U	ug/L	P372597	
	EPA 200.8 Rev. 5.4	Aluminum	50		ug/L	P372597	
		Antimony	0.050	U	ug/L	P372597	
		Arsenic	0.050	U	ug/L	P372597	
		Boron**	5.7	I	ug/L	P372597	
		Cadmium	0.020	U	ug/L	P372597	
		Chromium	0.40	U	ug/L	P372597	
		Copper	0.40	U	ug/L	P372597	
		Lead	0.20	U	ug/L	P372597	
		Nickel	0.50	U	ug/L	P373262	
		Selenium	0.20	U	ug/L	P372597	
		Silver	0.010	U	ug/L	P372597	
		Thallium	0.10	U	ug/L	P372597	

Sample Location: Mill Creek Upstream of Bayshore Drive

Collection Date/Time: 10/14/2019 10:35

Field ID: G3NW0141

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127924	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P372504	
	EPA 300.0 Rev. 2.1	Chloride	590		mg Cl/L	P372761	
		Sulfate	87		mg SO4/L	P373340	
	SM 2120 B	Color (true)	8.7	A	PCU	P372526	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P372890	
	SM 2540 C-97	TDS	1.01E+03	Q	mg/L	P373321	
	SM 2540 D-97	TSS	2	IQ	mg/L	P373292	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P373042	
2127928	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P372695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P373860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P372917	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P372581	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P372784	
2127932	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372515	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 C-97: Sample reanalyzed out of holding because of analytical difficulties.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample reanalyzed out of holding because of analytical difficulties.

Sample Location: Toms Creek upstream of Hwy 85

Collection Date/Time: 10/14/2019 11:15

Field ID: G3NW0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127925	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P372504	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P373338	
		Sulfate	1.5		mg SO4/L	P373247	
		Color (true)	14		PCU	P372526	
	SM 2320 B-97	Total Alkalinity	3.4		mg CaCO3/L	P372877	
	SM 2540 C-97	TDS	15	U	mg/L	P373300	
	SM 2540 D-97	TSS	2	I	mg/L	P373255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P372881	
2127929	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P372776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.099	I	mg N/L	P372668	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P372733	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P372580	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P372778	
2127933	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372516	

Sample Location: Gap Creek powerline South of Overbrook Drive Collection Date/Time: 10/14/2019 11:50

Field ID: G3NW0142

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127926	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P372505	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P373338	
		Sulfate	7.3		mg SO4/L	P373247	
		Color (true)	16		PCU	P372526	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P372877	
	SM 2540 C-97	TDS	48		mg/L	P373300	
	SM 2540 D-97	TSS	2	I	mg/L	P373255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P372881	
2127930	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P372776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P372668	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P372733	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P372580	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P372778	
2127934	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372516	

Ref. Method and Comment:

EPA 353.2 Rev. 2.0: The result was confirmed on 10/18/2019.

Sample Location: Gap Creek powerline South of Overbrook Drive Collection Date/Time: 10/14/2019 11:55

Field ID: G3NW0142_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127927	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P372505	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P373338	
		Sulfate	7.1		mg SO4/L	P373247	
	SM 2120 B	Color (true)	19		PCU	P372526	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P372877	
	SM 2540 C-97	TDS	52		mg/L	P373300	
	SM 2540 D-97	TSS	2	I	mg/L	P373255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P372881	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P372776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P372668	
2127931	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P372733	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P372582	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P372778	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P372517	
	dissolved						

Ref. Method and Comment:

EPA 353.2 Rev. 2.0: The result was confirmed on 10/18/2019.

Sample Location: Field Blank

Collection Date/Time: 10/14/2019 12:00

Field ID: FB_10142019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127936	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P372504	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P373338	
		Sulfate	0.20	U	mg SO4/L	P373247	
		Color (true)	2.5	U	PCU	P372526	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P372877	
	SM 2540 C-97	TDS	15	U	mg/L	P373300	
	SM 2540 D-97	TSS	2	U	mg/L	P373255	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P372881	
2127937	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P372776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P372668	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P372733	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P372582	
	SM 5310 B-00	Organic Carbon	0.53	I	mg C/L	P372778	
2127938	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372517	
2127955	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P372597	
		Calcium	0.075	U	mg/L	P372597	
		Iron	30	U	ug/L	P372597	
		Magnesium	0.040	U	mg/L	P372597	
		Potassium	0.30	U	mg/L	P372597	
		Sodium	0.50	U	mg/L	P372597	
		Zinc	5.0	U	ug/L	P372597	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P372597	
		Antimony	0.050	U	ug/L	P372597	
		Arsenic	0.050	U	ug/L	P372597	
		Boron**	2.0	U	ug/L	P372597	
		Cadmium	0.020	U	ug/L	P372597	
		Chromium	0.40	U	ug/L	P372597	
		Copper	0.40	U	ug/L	P372597	
		Lead	0.20	U	ug/L	P372597	
		Nickel	0.50	U	ug/L	P373262	
		Selenium	0.20	U	ug/L	P372597	
		Silver	0.010	U	ug/L	P372597	
		Thallium	0.10	U	ug/L	P372597	

Ref. Method and Comment:
SM 5310 B-00: The result was confirmed on 10/23/2019.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372504

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372505

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P372597

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: P372597

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
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: P373262

Component	Result	Code	Units
Nickel	0.50	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373247

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373338

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373340

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372695

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372776

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372578

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372668

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373860

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372731

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372733

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372917

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372580

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372581

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372582

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372515

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372516

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372517

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P372526

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P372877

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

Reference Method: SM 2320 B-97
Batch ID: P372890

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

Reference Method: SM 2540 C-97
Batch ID: P373300

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P373321

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373255

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373292

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P372881

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P373042

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P372778

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

Reference Method: SM 5310 B-00
Batch ID: P372784

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: P372597

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	103		P	85 - 115
Iron	102		P	85 - 115
Magnesium	114		P	85 - 115
Potassium	102		P	85 - 115
Sodium	108		P	85 - 115
Zinc	98.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P372597

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.3		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	103		P	85 - 115
Boron	97.1		P	85 - 115
Cadmium	97.9		P	85 - 115
Chromium	98.2		P	85 - 115
Copper	91.6		P	85 - 115
Lead	99.8		P	85 - 115
Selenium	97.1		P	85 - 115
Silver	100		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	91.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373247

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373338

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373338

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372695

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372776

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372731

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: P372733

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372917

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: P372580

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372581

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372582

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372516

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372517

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

Reference Method: SM 2120 B
Batch ID: P372526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P372877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P372890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P372881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P373042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P372778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P372784

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P372597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127981	Barium	99.0	99.6	P/P	80 - 120
2127981	Calcium	102		P	80 - 120
2127981	Iron	99.8		P	80 - 120
2127981	Magnesium	111	109	P/P	80 - 120
2127981	Potassium	113	112	P/P	80 - 120
2127981	Sodium	109	107	P/P	80 - 120
2127981	Zinc	98.3	98.6	P/P	80 - 120
2127995	Barium	101		P	80 - 120
2127995	Calcium	107		P	80 - 120
2127995	Iron	106		P	80 - 120
2127995	Magnesium	111		P	80 - 120
2127995	Potassium	102		P	80 - 120
2127995	Sodium	102		P	80 - 120
2127995	Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P372597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127981	Aluminum	97.0	95.9	P/P	80 - 120
2127981	Antimony	103	104	P/P	80 - 120
2127981	Arsenic	98.9	102	P/P	80 - 120
2127981	Boron	96.1	95.1	P/P	80 - 120
2127981	Cadmium	98.3	99.6	P/P	80 - 120
2127981	Chromium	98.9	94.6	P/P	80 - 120
2127981	Copper	97.4	92.8	P/P	80 - 120
2127981	Lead	101	101	P/P	80 - 120
2127981	Selenium	90.5	94.9	P/P	80 - 120
2127981	Silver	101	101	P/P	80 - 120
2127981	Thallium	105	104	P/P	80 - 120
2127995	Aluminum	97.5		P	80 - 120
2127995	Antimony	102		P	80 - 120
2127995	Arsenic	100		P	80 - 120
2127995	Boron	98.3		P	80 - 120
2127995	Cadmium	99.3		P	80 - 120
2127995	Chromium	91.3		P	80 - 120
2127995	Copper	89.6		P	80 - 120
2127995	Lead	98.9		P	80 - 120
2127995	Selenium	94.6		P	80 - 120
2127995	Silver	101		P	80 - 120
2127995	Thallium	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127969	Nickel	89.4		P	80 - 120
2127982	Nickel	87.8	88.6	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127138	Chloride	101	102	P/P	90 - 110
2127259	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127138	Sulfate	102	102	P/P	90 - 110
2127259	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127852	Sulfate	103		P	90 - 110
2127925	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127805	Chloride	100		P	90 - 110
2127964	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127805	Sulfate	99.8		P	90 - 110
2127964	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127928	Ammonia-N	99.9	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127922	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127855	Kjeldahl Nitrogen	98.1	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127930	Kjeldahl Nitrogen	95.0	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132947	Kjeldahl Nitrogen	95.0	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128272	NO2NO3-N	99.5	98.5	P/P	90 - 110
2128272	NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127929	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127847	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127806	Total-P	100	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372581

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127829	Total-P	91.6	93.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127965	Total-P	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127715	O-Phosphate-P	97.6	98.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127736	O-Phosphate-P	100	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127935	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P372881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2128000	Fluoride	95.3	94.8	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P373042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2129511	Fluoride	98.3	99.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P372778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127771	Organic Carbon	88.5	93.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P372784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127310	Organic Carbon	99.7	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127842	Turbidity	7.73	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127985	Turbidity	5.28	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P372597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127981	Barium	0.528	Spike	P	0 - 20
2127981	Calcium	1.53	Spike	P	0 - 20
2127981	Iron	1.69	Spike	P	0 - 20
2127981	Magnesium	1.69	Spike	P	0 - 20
2127981	Potassium	1.49	Spike	P	0 - 20
2127981	Sodium	1.22	Spike	P	0 - 20
2127981	Zinc	0.303	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P372597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127981	Aluminum	1.18	Spike	P	0 - 20
2127981	Antimony	1.30	Spike	P	0 - 20
2127981	Arsenic	3.14	Spike	P	0 - 20
2127981	Boron	1.01	Spike	P	0 - 20
2127981	Cadmium	1.24	Spike	P	0 - 20
2127981	Chromium	4.43	Spike	P	0 - 20
2127981	Copper	4.51	Spike	P	0 - 20
2127981	Lead	0.369	Spike	P	0 - 20
2127981	Selenium	4.81	Spike	P	0 - 20
2127981	Silver	0.321	Spike	P	0 - 20
2127981	Thallium	1.05	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127982	Nickel	0.953	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127138	Chloride	0.361	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127138	Sulfate	0.0117	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127852	Sulfate	0.249	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127805	Chloride	0.500	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127928	Ammonia-N	2.21	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127922	Ammonia-N	0.480	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127855	Kjeldahl Nitrogen	2.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127930	Kjeldahl Nitrogen	2.78	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132947	Kjeldahl Nitrogen	3.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128272	NO2NO3-N	0.298	Spike	P	0 - 15

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127929	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127847	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127806	Total-P	3.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372581

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127829	Total-P	2.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127965	Total-P	1.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127715	O-Phosphate-P	0.409	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127736	O-Phosphate-P	0.522	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127935	O-Phosphate-P	0.196	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P372526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127924	Color (true)	6.11	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P372877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128000	Total Alkalinity	0.360	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P372890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129379	Total Alkalinity	1.03	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P373300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127884	TDS	3.62	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P373321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130247	TDS	1.13	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P373255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127884	TSS	3.64	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P372881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2128000	Fluoride	0.477	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P373042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129511	Fluoride	0.524	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P372778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127771	Organic Carbon	2.66	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P372784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127310	Organic Carbon	0.390	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94965

Included Lab Sample IDs: 2127921, 2127924, 2127925, 2127926, 2127927, 2127936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A94971

Included Lab Sample IDs: 2127923, 2127932, 2127933, 2127934, 2127935, 2127938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.3	P/P	90 - 110
O-Phosphate-P	98.3	97.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A94979

Included Lab Sample IDs: 2127921, 2127924, 2127925, 2127926, 2127927, 2127936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.6	98.4	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95003

Included Lab Sample IDs: 2127921, 2127924

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95031

Included Lab Sample IDs: 2127922

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A95043

Included Lab Sample IDs: 2127954, 2127955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Barium	102	101	P/P	90 - 110
Calcium	101	104	P/P	90 - 110
Calcium	104	103	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	101	100	P/P	90 - 110
Potassium	99.2	101	P/P	90 - 110
Sodium	101	100	P/P	90 - 110
Sodium	98.1	101	P/P	90 - 110
Zinc	100	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A95043

Included Lab Sample IDs: 2127954, 2127955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	99.5	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95045

Included Lab Sample IDs: 2127928

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95064

Included Lab Sample IDs: 2127929, 2127930, 2127931, 2127937

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95072

Included Lab Sample IDs: 2127922, 2127928, 2127929, 2127937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	101	101	P/P	90 - 110
Total-P	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95080

Included Lab Sample IDs: 2127922, 2127929, 2127930, 2127931, 2127937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.4	P/P	90 - 110
Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95081

Included Lab Sample IDs: 2127922, 2127929, 2127930, 2127931, 2127937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.3	96.8	P/P	90 - 110
Organic Carbon	94.3	93.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95085

Included Lab Sample IDs: 2127928

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95105

Included Lab Sample IDs: 2127930, 2127931

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

Reference Method: SM 2320 B-97

Run ID: A95130

Included Lab Sample IDs: 2127921, 2127925, 2127926, 2127927, 2127936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95130

Included Lab Sample IDs: 2127921, 2127925, 2127926, 2127927, 2127936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95133

Included Lab Sample IDs: 2127924

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95141

Included Lab Sample IDs: 2127928

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95144

Included Lab Sample IDs: 2127929, 2127930, 2127931, 2127937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95145

Included Lab Sample IDs: 2127922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	91.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95182

Included Lab Sample IDs: 2127954, 2127955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	96.8	P/P	90 - 110
Aluminum	96.8	95.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95182

Included Lab Sample IDs: 2127954, 2127955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	101	102	P/P	90 - 110
Antimony	102	102	P/P	90 - 110
Arsenic	104	104	P/P	90 - 110
Arsenic	104	105	P/P	90 - 110
Boron	98.1	95.6	P/P	90 - 110
Boron	99.1	98.1	P/P	90 - 110
Cadmium	101	103	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Lead	100	101	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Selenium	104	104	P/P	90 - 110
Selenium	104	102	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Silver	99.7	101	P/P	90 - 110
Thallium	97.1	97.3	P/P	90 - 110
Thallium	97.3	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95197

Included Lab Sample IDs: 2127924

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95228

Included Lab Sample IDs: 2127954, 2127955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	91.4	92.6	P/P	90 - 110
Copper	91.0	90.9	P/P	90 - 110
Copper	93.0	91.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95282

Included Lab Sample IDs: 2127925, 2127926, 2127927, 2127936

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95307

Included Lab Sample IDs: 2127925, 2127926, 2127927, 2127936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	99.9	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95370

Included Lab Sample IDs: 2127955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	97.7	97.6	P/P	90 - 110
Nickel	91.3	90.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A95490

Included Lab Sample IDs: 2127954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	97.9	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95591

Included Lab Sample IDs: 2127928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.8	94.1	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						7.73	
	Turbidity						5.28	
EPA 200.7 Rev. 4.4	Barium	100	99.0	99.6	101			0.528
	Calcium	103	102	107				1.53
	Iron	102	99.8	106				1.69
	Magnesium	114	111	109	111			1.69
	Potassium	102	113	112	102			1.49
	Sodium	108	109	107	102			1.22
	Zinc	98.5	98.3	98.6	100			0.303
EPA 200.8 Rev. 5.4	Aluminum	98.3	97.0	95.9	97.5			1.18
	Antimony	103	103	104	102			1.30
	Arsenic	103	98.9	102	100			3.14
	Boron	97.1	96.1	95.1	98.3			1.01
	Cadmium	97.9	98.3	99.6	99.3			1.24
	Chromium	98.2	98.9	94.6	91.3			4.43
	Copper	91.6	97.4	92.8	89.6			4.51
	Lead	99.8	101	101	98.9			0.369
	Nickel	91.3	89.4	87.8	88.6			0.953
	Selenium	97.1	90.5	94.9	94.6			4.81
	Silver	100	101	101	101			0.321
	Thallium	103	105	104	102			1.05
EPA 300.0 Rev. 2.1	Chloride	99.8	101	102	100			0.361
	Chloride	99.1	100	99.4			0.500	
	Sulfate	99.9	102	102	101			0.0117
	Sulfate	102	103	103			0.249	
	Sulfate	98.3	99.8	98.1				
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	99.9	96.2				2.21
	Ammonia-N	100	102	101				0.480
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.6	98.1	101				2.33
	Kjeldahl Nitrogen	94.5	95.0	98.1				2.78
	Kjeldahl Nitrogen	93.3	95.0	99.8				3.26
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.5	99.0	98.5			0.298 RSD
	NO2NO3-N	99.5	99.5	99.5				0.0
	NO2NO3-N	100	100	100				0.499
EPA 365.1 Rev. 2.0	Total-P	99.1	100	96.6				3.23
	Total-P	98.0	91.6	93.8				2.38
	Total-P	98.9	97.0	96.0				1.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	97.6	98.0				0.409
	O-Phosphate-P	103	100	99.3				0.522
	O-Phosphate-P	99.6	102	102				0.196
SM 2120 B	Color (true)	98.4					6.11	
SM 2320 B-97	Total Alkalinity	105					0.360	
	Total Alkalinity	104					1.03	
SM 2540 C-97	TDS						3.62	
	TDS						1.13	
SM 2540 D-97	TSS						3.64	
SM 4500 F-C-97	Fluoride	94.8	95.3	94.8				0.477
	Fluoride	97.9	98.3	99.0				0.524
SM 5310 B-00	Organic Carbon	95.8	88.5	93.6				2.66
	Organic Carbon	101	99.7	99.2				0.390

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2127954, 2127955
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2127954, 2127955
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2127922, 2127928, 2127929, 2127930, 2127931, 2127937
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2127922, 2127928, 2127929, 2127930, 2127931, 2127937
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2127922, 2127928, 2127929, 2127930, 2127931, 2127937
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2127922, 2127928, 2127929, 2127930, 2127931, 2127937
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2127923, 2127932, 2127933, 2127934, 2127935, 2127938
SM 2120 B / E31780	True Color measured at 450 nm	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2127922, 2127928, 2127929, 2127930, 2127931, 2127937

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	10/15/2019			10/15/2019 16:32	Samantha Davila	2127921, 2127924, 2127925, 2127926, 2127927, 2127936
EPA 200.7 Rev. 4.4	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/17/2019 13:35	Alexander Thompson	2127955
	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/17/2019 15:13	Alexander Thompson	2127954
EPA 200.8 Rev. 5.4	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/23/2019 03:38	Robert K Palmer	2127955
	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/23/2019 05:46	Robert K Palmer	2127954
	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/24/2019 20:39	Robert K Palmer	2127955
	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/24/2019 21:39	Robert K Palmer	2127954
	10/15/2019	10/16/2019 16:55	Elliott D. Healy	10/31/2019 03:55	Robert K Palmer	2127955
	10/15/2019	10/28/2019 17:00	Elliott D. Healy	10/31/2019 06:48	Robert K Palmer	2127955
	10/15/2019	10/28/2019 17:00	Elliott D. Healy	11/04/2019 19:39	Justin Cutchin	2127954
EPA 300.0 Rev. 2.1	10/15/2019			10/17/2019 13:44	Jhamieka S. Greenwood	2127921
	10/15/2019			10/17/2019 13:56	Jhamieka S. Greenwood	2127924
	10/15/2019			10/26/2019 02:26	Julia Storbeck	2127925
	10/15/2019			10/26/2019 05:39	Julia Storbeck	2127926
	10/15/2019			10/26/2019 05:51	Julia Storbeck	2127927
	10/15/2019			10/26/2019 06:28	Julia Storbeck	2127936
	10/15/2019			10/28/2019 22:54	Julia Storbeck	2127925
	10/15/2019			10/28/2019 23:07	Julia Storbeck	2127926
	10/15/2019			10/28/2019 23:19	Julia Storbeck	2127927
	10/15/2019			10/28/2019 23:31	Julia Storbeck	2127936
	10/15/2019			10/29/2019 01:07	Julia Storbeck	2127924
EPA 350.1 Rev. 2.0	10/15/2019			10/17/2019 13:47	Ping Hua	2127928
	10/15/2019			10/18/2019 14:28	Ping Hua	2127929
	10/15/2019			10/18/2019 14:29	Ping Hua	2127930
	10/15/2019			10/18/2019 14:31	Ping Hua	2127931
	10/15/2019			10/18/2019 14:35	Ping Hua	2127937
	10/15/2019			10/18/2019 15:13	Ping Hua	2127922
EPA 351.2 Rev. 2.0	10/15/2019	10/16/2019 12:17	Sima Feizi	10/18/2019 21:24	Jhamieka S. Greenwood	2127922
	10/15/2019	10/17/2019 11:10	Sima Feizi	10/18/2019 17:22	Jhamieka S. Greenwood	2127930
	10/15/2019	10/17/2019 11:10	Sima Feizi	10/18/2019 17:26	Jhamieka S. Greenwood	2127929
	10/15/2019	10/17/2019 11:10	Sima Feizi	10/18/2019 17:28	Jhamieka S. Greenwood	2127931
	10/15/2019	10/17/2019 11:10	Sima Feizi	10/18/2019 17:29	Jhamieka S. Greenwood	2127937
	10/15/2019	11/07/2019 11:50	Sima Feizi	11/08/2019 12:07	Virginia P. Brown	2127928
EPA 353.2 Rev. 2.0	10/15/2019			10/17/2019 11:52	Beverly Y. Sanders	2127922
	10/15/2019			10/18/2019 10:52	Beverly Y. Sanders	2127929
	10/15/2019			10/18/2019 10:58	Beverly Y. Sanders	2127930
	10/15/2019			10/18/2019 10:59	Beverly Y. Sanders	2127931
	10/15/2019			10/18/2019 11:01	Beverly Y. Sanders	2127937
	10/15/2019			10/22/2019 13:28	Lauren Lees	2127928

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	10/15/2019	10/16/2019 10:45	Lipi Saha	10/17/2019 17:05	Rosalyn Ballman	2127929
	10/15/2019	10/16/2019 10:45	Lipi Saha	10/17/2019 17:22	Rosalyn Ballman	2127928
	10/15/2019	10/16/2019 10:45	Lipi Saha	10/17/2019 17:25	Rosalyn Ballman	2127937
	10/15/2019	10/16/2019 10:45	Lipi Saha	10/17/2019 17:42	Rosalyn Ballman	2127922
	10/15/2019	10/16/2019 10:45	Lipi Saha	10/21/2019 17:35	Beverly Y. Sanders	2127930
	10/15/2019	10/16/2019 10:45	Lipi Saha	10/21/2019 17:38	Beverly Y. Sanders	2127931
EPA 365.1 Rev. 2.0 dissolved	10/15/2019			10/15/2019 15:38	Virginia P. Brown	2127935
	10/15/2019			10/15/2019 15:42	Virginia P. Brown	2127932
	10/15/2019			10/15/2019 15:54	Virginia P. Brown	2127923, 2127933
	10/15/2019			10/15/2019 15:55	Virginia P. Brown	2127934
	10/15/2019			10/15/2019 15:56	Virginia P. Brown	2127938
SM 2120 B	10/15/2019			10/15/2019 17:54	Madeline Funaro	2127921
	10/15/2019			10/15/2019 17:56	Madeline Funaro	2127924, 2127925
	10/15/2019			10/15/2019 17:57	Madeline Funaro	2127926
	10/15/2019			10/15/2019 17:58	Madeline Funaro	2127927
	10/15/2019			10/15/2019 17:59	Madeline Funaro	2127936
SM 2320 B-97	10/15/2019			10/19/2019 08:53	Dale L. Simmons	2127921
	10/15/2019			10/19/2019 09:08	Dale L. Simmons	2127925
	10/15/2019			10/19/2019 09:20	Dale L. Simmons	2127926
	10/15/2019			10/19/2019 09:31	Dale L. Simmons	2127927
	10/15/2019			10/19/2019 09:44	Dale L. Simmons	2127936
SM 2540 C-97	10/15/2019			10/22/2019 03:09	Dale L. Simmons	2127924
	10/15/2019			10/18/2019 15:45	Yijie Li	2127921, 2127925, 2127926, 2127927, 2127936
SM 2540 D-97	10/15/2019			10/23/2019 14:58	Yijie Li	2127924
	10/15/2019			10/18/2019 15:45	Yijie Li	2127921, 2127925, 2127926, 2127927, 2127936
SM 4500 F-C-97	10/15/2019			10/23/2019 14:58	Yijie Li	2127924
	10/15/2019			10/19/2019 08:53	Dale L. Simmons	2127921
	10/15/2019			10/19/2019 09:08	Dale L. Simmons	2127925
	10/15/2019			10/19/2019 09:20	Dale L. Simmons	2127926
	10/15/2019			10/19/2019 09:31	Dale L. Simmons	2127927
	10/15/2019			10/19/2019 09:44	Dale L. Simmons	2127936
SM 5310 B-00	10/15/2019			10/24/2019 02:02	Dale L. Simmons	2127924
	10/15/2019			10/18/2019 06:47	Madeline Funaro	2127922
	10/15/2019			10/18/2019 07:00	Madeline Funaro	2127929
	10/15/2019			10/18/2019 07:15	Madeline Funaro	2127930
	10/15/2019			10/18/2019 07:29	Madeline Funaro	2127931
	10/15/2019			10/18/2019 08:06	Madeline Funaro	2127937
	10/15/2019			10/19/2019 12:23	Madeline Funaro	2127928