

Chemical Analysis Report

NE-DIST-2019-04-18-01

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

Event Description: **LSJR North Boat**
Request ID: **RQ-2019-04-15-17**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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: Colin Wright, Program Administrator

Date Certified: 10-MAY-2019 16:03

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: RIBAUT R MONCRIEF RD BR

Collection Date/Time: 04/17/2019 11:25

Field ID: 20030129

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079290	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P362455	
	EPA 300.0	Bromide	7.7	A	mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	105		mg CaCO3/L	P362948	
	SM 2540 D-97	TSS	15		mg/L	P362750	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P362952	
2079292	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P362844	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362649	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P362615	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P362591	
2079294	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P362464	

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: MONCRIEF CREEK NEAR MOUTH

Collection Date/Time: 04/17/2019 13:00

Field ID: 20030115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079302	EPA 180.1 Rev. 2.0	Turbidity	8.2		NTU	P362456	
	EPA 300.0	Bromide	18		mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	85		mg CaCO3/L	P363131	
	SM 2540 D-97	TSS	20		mg/L	P362755	
	SM 4500 F-C-97	Fluoride	0.39		mg F/L	P363132	
2079304	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P363092	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.072		mg N/L	P362649	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P362687	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P362592	
2079306	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P362464	

**Sample Location: MONCRIEF CR LEM TURNER RD
 BR/NORWOOD AVE**

Collection Date/Time: 04/17/2019 14:10

Field ID: 20030114

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079303	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P362456	
	EPA 300.0	Bromide	7.2		mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P362948	
	SM 2540 D-97	TSS	20		mg/L	P362753	
	SM 4500 F-C-97	Fluoride	0.26		mg F/L	P362952	
2079305	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P363092	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P362649	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P362687	
	SM 5310 B-00	Organic Carbon	9.4		mg C/L	P362591	
2079307	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P362464	

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: TROUT R @ I-95 BURT MAXWELL DOCK

Collection Date/Time: 04/17/2019 09:25

Field ID: FB 04172019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079308	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P362456	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P362743	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P362948	
	SM 2540 D-97	TSS	2	U	mg/L	P362753	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P362952	
2079309	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P362690	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P362843	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362770	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P362652	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P362591	
2079310	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362461	
2079322	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P362614	
		Manganese	1.0	U	ug/L	P362614	
		Zinc	5.0	U	ug/L	P362614	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P362614	
		Antimony	0.050	U	ug/L	P362614	
		Arsenic	0.050	U	ug/L	P362614	
		Cadmium	0.020	U	ug/L	P362614	
		Chromium	0.40	U	ug/L	P362614	
		Copper	0.40	U	ug/L	P362614	
		Lead	0.20	U	ug/L	P362614	
		Nickel	0.50	U	ug/L	P362614	
		Selenium	0.20	U	ug/L	P362614	
		Silver	0.010	U	ug/L	P362614	
		Thallium	0.10	U	ug/L	P362614	

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: TROUT R @ I-95 BURT MAXWELL DOCK

Collection Date/Time: 04/17/2019 09:00

Field ID: 20030121

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079296	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P362455	
	EPA 300.0	Bromide	18		mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P363131	
	SM 2540 D-97	TSS	15		mg/L	P362755	
	SM 4500 F-C-97	Fluoride	0.39		mg F/L	P363132	
2079298	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P362844	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P362649	
	EPA 365.1 Rev. 2.0	Total-P	0.095		mg P/L	P362687	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P362592	
2079300	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.069		mg P/L	P362464	
2079320	EPA 200.7 Rev. 4.4	Iron	250	I	ug/L	P362810	
		Manganese	10	I	ug/L	P362810	
		Zinc	15	U	ug/L	P362810	
	EPA 200.8 Rev. 5.4	Aluminum	185		ug/L	P362810	
		Antimony	0.20	U	ug/L	P362810	
		Arsenic	1.79		ug/L	P362810	
		Cadmium	0.080	U	ug/L	P362810	
		Chromium	4.0	U	ug/L	P362810	
		Copper	1.6	U	ug/L	P362810	
		Lead	0.80	U	ug/L	P362810	
		Nickel	2.0	U	ug/L	P362810	
		Selenium	0.80	U	ug/L	P362810	
		Silver	0.040	U	ug/L	P362810	
		Thallium	0.40	U	ug/L	P362810	

Sample Location: TROUT R @ I-95 BURT MAXWELL DOCK

Collection Date/Time: 04/17/2019 09:15

Field ID: 20030121 DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079297	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P362456	
	EPA 300.0	Bromide	19		mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P363131	
	SM 2540 D-97	TSS	14		mg/L	P362753	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P363132	
2079299	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P362844	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P362649	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P362687	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P362592	
2079301	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.068		mg P/L	P362464	
2079321	EPA 200.7 Rev. 4.4	Iron	250	I	ug/L	P362810	
		Manganese	10	I	ug/L	P362810	
		Zinc	15	U	ug/L	P362810	
	EPA 200.8 Rev. 5.4	Aluminum	168		ug/L	P362810	
		Antimony	0.20	U	ug/L	P362810	
		Arsenic	1.76		ug/L	P362810	
		Cadmium	0.080	U	ug/L	P362810	
		Chromium	4.0	U	ug/L	P362810	
		Copper	1.6	U	ug/L	P362810	
		Lead	0.80	U	ug/L	P362810	
		Nickel	2.0	U	ug/L	P362810	
		Selenium	0.80	U	ug/L	P362810	
		Silver	0.040	U	ug/L	P362810	
		Thallium	0.40	U	ug/L	P362810	

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: RIBAUT RIVER AT US-1

Collection Date/Time: 04/17/2019 10:50

Field ID: 20030133

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079291	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P362455	
	EPA 300.0	Bromide	5.4		mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	108		mg CaCO3/L	P362948	
	SM 2540 D-97	TSS	12		mg/L	P362753	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P362952	
2079293	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P362844	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362649	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P362615	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P362591	
2079295	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P362464	

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: P362455

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362456

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362614

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362810

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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: P362810

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362810

Component	Result	Code	Units
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0
Batch ID: P362742

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0
Batch ID: P362743

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362690

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362844

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363092

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362649

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362615

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362464

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

Reference Method: SM 2320 B-97
Batch ID: P362948

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

Reference Method: SM 2320 B-97
Batch ID: P363131

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

Reference Method: SM 2540 D-97
Batch ID: P362750

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P362753

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362755

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362591

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

Reference Method: SM 5310 B-00
Batch ID: P362592

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: P362614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Manganese	98.1		P	85 - 115
Zinc	97.0		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Manganese	102		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.1		P	85 - 115
Antimony	91.8		P	85 - 115
Arsenic	95.2		P	85 - 115
Cadmium	95.9		P	85 - 115
Chromium	87.7		P	85 - 115
Copper	93.1		P	85 - 115
Lead	96.5		P	85 - 115
Nickel	93.3		P	85 - 115
Selenium	94.2		P	85 - 115
Silver	113		P	85 - 115
Thallium	90.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.7		P	85 - 115
Antimony	98.4		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	99.9		P	85 - 115
Chromium	90.5		P	85 - 115
Copper	98.4		P	85 - 115
Lead	91.9		P	85 - 115
Nickel	99.5		P	85 - 115
Selenium	101		P	85 - 115
Silver	95.4		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P362742

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P362743

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362690

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362844

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363092

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362649

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362615

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362464

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

Reference Method: SM 2320 B-97
Batch ID: P362948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P363131

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362591

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P362592

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: P362614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078912	Iron	105		P	80 - 120
2078912	Manganese	98.3		P	80 - 120
2078912	Zinc	97.1		P	80 - 120
2079154	Iron	106	105	P/P	80 - 120
2079154	Manganese	98.8	99.7	P/P	80 - 120
2079154	Zinc	98.1	99.4	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079824	Iron	104		P	70 - 130
2079824	Manganese	96.5		P	70 - 130
2079824	Zinc	102		P	70 - 130
2080086	Iron	104	105	P/P	80 - 120
2080086	Manganese	97.6	97.9	P/P	80 - 120
2080086	Zinc	100	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078912	Aluminum	90.8		P	80 - 120
2078912	Antimony	91.8		P	80 - 120
2078912	Arsenic	94.4		P	80 - 120
2078912	Cadmium	95.1		P	80 - 120
2078912	Chromium	87.5		P	80 - 120
2078912	Copper	89.4		P	80 - 120
2078912	Lead	96.4		P	80 - 120
2078912	Nickel	90.6		P	80 - 120
2078912	Selenium	92.2		P	80 - 120
2078912	Silver	112		P	80 - 120
2078912	Thallium	112		P	80 - 120
2079154	Aluminum	91.0	89.6	P/P	80 - 120
2079154	Antimony	90.2	89.8	P/P	80 - 120
2079154	Arsenic	92.6	92.6	P/P	80 - 120
2079154	Cadmium	94.0	92.7	P/P	80 - 120
2079154	Chromium	89.2	88.4	P/P	80 - 120
2079154	Copper	93.2	93.2	P/P	80 - 120
2079154	Lead	96.8	96.4	P/P	80 - 120
2079154	Nickel	93.1	93.1	P/P	80 - 120
2079154	Selenium	91.2	91.5	P/P	80 - 120
2079154	Silver	110	112	P/P	80 - 120
2079154	Thallium	109	111	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079824	Aluminum	94.9		P	70 - 130
2079824	Antimony	101		P	70 - 130
2079824	Arsenic	109		P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079824	Cadmium	96.9		P	70 - 130
2079824	Chromium	88.5		P	70 - 130
2079824	Copper	95.5		P	70 - 130
2079824	Lead	96.8		P	70 - 130
2079824	Nickel	99.4		P	70 - 130
2079824	Selenium	103		P	70 - 130
2079824	Silver	90.3		P	70 - 130
2079824	Thallium	106		P	70 - 130
2080086	Aluminum	96.6	94.5	P/P	70 - 130
2080086	Antimony	105	103	P/P	70 - 130
2080086	Arsenic	112	110	P/P	70 - 130
2080086	Cadmium	101	97.9	P/P	70 - 130
2080086	Chromium	88.6	91.4	P/P	70 - 130
2080086	Copper	97.0	96.3	P/P	70 - 130
2080086	Lead	98.0	97.2	P/P	70 - 130
2080086	Nickel	98.9	97.0	P/P	70 - 130
2080086	Selenium	103	104	P/P	70 - 130
2080086	Silver	90.0	89.1	P/P	70 - 130
2080086	Thallium	106	106	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P362742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079290	Bromide	98.4		P	90 - 110
2079303	Bromide	99.0		P	90 - 110

Reference Method: EPA 300.0
Batch ID: P362743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079142	Bromide	104	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079464	Ammonia-N	99.3	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079431	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079163	Kjeldahl Nitrogen	91.4	97.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079183	Kjeldahl Nitrogen	94.1	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079304	Kjeldahl Nitrogen	99.4	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079292	NO2NO3-N	94.9	94.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079173	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079270	Total-P	99.5	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079223	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079305	Total-P	99.5	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079175	O-Phosphate-P	95.8	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079185	O-Phosphate-P	96.7	97.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079060	Fluoride	98.5	98.5	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080079	Fluoride	97.9	99.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079061	Organic Carbon	99.8	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P362592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079272	Organic Carbon	101	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079243	Turbidity	4.99	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079303	Turbidity	1.71	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079154	Iron	1.16	Spike	P	0 - 20
2079154	Manganese	0.947	Spike	P	0 - 20
2079154	Zinc	1.25	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080086	Iron	0.149	Spike	P	0 - 20
2080086	Manganese	0.321	Spike	P	0 - 20
2080086	Zinc	0.0135	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079154	Aluminum	1.37	Spike	P	0 - 20
2079154	Antimony	0.522	Spike	P	0 - 20
2079154	Arsenic	0.0398	Spike	P	0 - 20
2079154	Cadmium	1.49	Spike	P	0 - 20
2079154	Chromium	0.876	Spike	P	0 - 20
2079154	Copper	0.0551	Spike	P	0 - 20
2079154	Lead	0.408	Spike	P	0 - 20
2079154	Nickel	0.0864	Spike	P	0 - 20
2079154	Selenium	0.387	Spike	P	0 - 20
2079154	Silver	1.17	Spike	P	0 - 20
2079154	Thallium	1.91	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080086	Aluminum	2.06	Spike	P	0 - 20
2080086	Antimony	1.42	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080086	Arsenic	1.09	Spike	P	0 - 20
2080086	Cadmium	2.65	Spike	P	0 - 20
2080086	Chromium	3.10	Spike	P	0 - 20
2080086	Copper	0.732	Spike	P	0 - 20
2080086	Lead	0.799	Spike	P	0 - 20
2080086	Nickel	1.92	Spike	P	0 - 20
2080086	Selenium	1.48	Spike	P	0 - 20
2080086	Silver	1.02	Spike	P	0 - 20
2080086	Thallium	0.296	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P362742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079290	Bromide	0.988	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P362743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079142	Bromide	2.72	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079464	Ammonia-N	1.47	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079431	Ammonia-N	0.102	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079163	Kjeldahl Nitrogen	3.77	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079183	Kjeldahl Nitrogen	2.87	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079304	Kjeldahl Nitrogen	2.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079292	NO2NO3-N	0.528	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079173	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079270	Total-P	1.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079223	Total-P	2.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079305	Total-P	0.0606	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079175	O-Phosphate-P	1.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079185	O-Phosphate-P	0.824	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P362948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Total Alkalinity	0.265	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P363131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080079	Total Alkalinity	0.508	Sample	P	0 - 2.8

Reference Method: SM 2540 D-97
Batch ID: P362755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079177	TSS	4.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080079	Fluoride	0.940	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P362591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079061	Organic Carbon	0.243	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P362592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079272	Organic Carbon	0.522	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90832

Included Lab Sample IDs: 2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90833

Included Lab Sample IDs: 2079294, 2079295, 2079300, 2079301, 2079306, 2079307, 2079310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90876

Included Lab Sample IDs: 2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	103	P/P	90 - 110
Organic Carbon	103	105	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A90903

Included Lab Sample IDs: 2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	101	P/P	90 - 110
Bromide	96.8	98.0	P/P	90 - 110
Bromide	98.4	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90918

Included Lab Sample IDs: 2079292, 2079293, 2079298, 2079299, 2079304, 2079305

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90927

Included Lab Sample IDs: 2079292, 2079293

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90940

Included Lab Sample IDs: 2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	102	P/P	90 - 110
Ammonia-N	104	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90968

Included Lab Sample IDs: 2079309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90983

Included Lab Sample IDs: 2079322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	100	P/P	95 - 105
Manganese	101	102	P/P	95 - 105
Zinc	101	101	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90993

Included Lab Sample IDs: 2079322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.1	96.1	P/P	90 - 110
Antimony	94.5	94.0	P/P	90 - 110
Arsenic	97.9	96.0	P/P	90 - 110
Cadmium	95.7	95.9	P/P	90 - 110
Chromium	96.1	95.2	P/P	90 - 110
Copper	97.2	96.1	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Nickel	96.3	95.0	P/P	90 - 110
Selenium	96.8	95.3	P/P	90 - 110
Thallium	94.3	90.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91009

Included Lab Sample IDs: 2079320, 2079321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	102	P/P	95 - 105
Manganese	102	103	P/P	95 - 105
Zinc	102	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91013

Included Lab Sample IDs: 2079304, 2079305

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91017

Included Lab Sample IDs: 2079298, 2079299, 2079309

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91019

Included Lab Sample IDs: 2079320, 2079321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	92.7	93.1	P/P	90 - 110
Antimony	99.1	99.9	P/P	90 - 110
Arsenic	99.2	99.7	P/P	90 - 110
Cadmium	97.3	97.2	P/P	90 - 110
Copper	98.4	98.1	P/P	90 - 110
Lead	90.6	91.4	P/P	90 - 110
Nickel	97.7	98.4	P/P	90 - 110
Selenium	97.3	99.8	P/P	90 - 110
Silver	95.9	95.7	P/P	90 - 110
Thallium	96.2	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91020

Included Lab Sample IDs: 2079292, 2079293, 2079298, 2079299, 2079309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	96.8	P/P	90 - 110
Kjeldahl Nitrogen	98.0	96.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91045

Included Lab Sample IDs: 2079290, 2079291, 2079303, 2079308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	107	100	P/P	90 - 110
Total Alkalinity	99.9	107	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91045

Included Lab Sample IDs: 2079290, 2079291, 2079303, 2079308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	98.6	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91077

Included Lab Sample IDs: 2079322

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

Reference Method: SM 2320 B-97

Run ID: A91108

Included Lab Sample IDs: 2079296, 2079297, 2079302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A91108

Included Lab Sample IDs: 2079296, 2079297, 2079302

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91145

Included Lab Sample IDs: 2079320, 2079321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	93.2	94.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91156

Included Lab Sample IDs: 2079304, 2079305

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	95.7	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.99	
	Turbidity					1.71	
EPA 200.7 Rev. 4.4	Iron	103	105	106	105		1.16
	Iron	105	105	104	104		0.149
	Manganese	98.1	98.3	98.8	99.7		0.947
	Manganese	102	96.5	97.6	97.9		0.321
	Zinc	97.0	97.1	98.1	99.4		1.25
	Zinc	102	102	100	100		0.0135
EPA 200.8 Rev. 5.4	Aluminum	93.1	90.8	91.0	89.6		1.37
	Aluminum	95.7	94.9	96.6	94.5		2.06
	Antimony	91.8	91.8	90.2	89.8		0.522
	Antimony	98.4	101	105	103		1.42
	Arsenic	95.2	94.4	92.6	92.6		0.0398
	Arsenic	101	109	112	110		1.09
	Cadmium	95.9	95.1	94.0	92.7		1.49
	Cadmium	99.9	96.9	101	97.9		2.65
	Chromium	87.7	87.5	89.2	88.4		0.876
	Chromium	90.5	88.6	91.4	88.5		3.10
	Copper	93.1	89.4	93.2	93.2		0.0551
	Copper	98.4	95.5	97.0	96.3		0.732
	Lead	96.5	96.4	96.8	96.4		0.408
	Lead	91.9	96.8	98.0	97.2		0.799
	Nickel	93.3	90.6	93.1	93.1		0.0864
	Nickel	99.5	99.4	98.9	97.0		1.92
	Selenium	94.2	92.2	91.2	91.5		0.387
	Selenium	101	103	103	104		1.48
	Silver	113	112	110	112		1.17
	Silver	95.4	90.3	90.0	89.1		1.02
	Thallium	90.8	112	109	111		1.91
	Thallium	102	106	106	106		0.296
EPA 300.0	Bromide	101	98.4	99.0		0.988	
	Bromide	106	104	107			2.72
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	99.3	101			1.47
	Ammonia-N	104	105	105			0.102
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	91.4	97.8			3.77
	Kjeldahl Nitrogen	100	94.1	97.9			2.87
	Kjeldahl Nitrogen	99.7	99.4	96.4			2.35
EPA 353.2 Rev. 2.0	NO2NO3-N	100	94.9	94.4			0.528
	NO2NO3-N	99.0	100	99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	99.0	99.5	97.6			1.83
	Total-P	95.7	101	104			2.25
	Total-P	99.0	99.5	99.6			0.0606
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	95.8	97.6			1.86
	O-Phosphate-P	102	96.7	97.5			0.824
SM 2320 B-97	Total Alkalinity	102				0.265	
	Total Alkalinity	100				0.508	
SM 2540 D-97	TSS					4.17	
SM 4500 F-C-97	Fluoride	99.3	98.5	98.5			0.0
	Fluoride	96.6	97.9	99.6			0.940
SM 5310 B-00	Organic Carbon	101	99.8	100			0.243
	Organic Carbon	101	101	100			0.522

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2079320, 2079321, 2079322
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2079320, 2079321, 2079322
EPA 300.0 / E31780	Bromide in aqueous matrices	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2079294, 2079295, 2079300, 2079301, 2079306, 2079307, 2079310
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2079292, 2079293, 2079298, 2079299, 2079304, 2079305, 2079309

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	04/18/2019			04/18/2019 16:29	Adrian Shelby	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
EPA 200.7 Rev. 4.4	04/18/2019	04/22/2019 15:30	Elliott D. Healy	04/24/2019 12:48	Betina Topolski	2079322
	04/18/2019	04/24/2019 17:30	Elliott D. Healy	04/25/2019 14:13	Betina Topolski	2079320
	04/18/2019	04/24/2019 17:30	Elliott D. Healy	04/25/2019 14:22	Betina Topolski	2079321
EPA 200.8 Rev. 5.4	04/18/2019	04/22/2019 15:30	Elliott D. Healy	04/24/2019 18:57	Robert K Palmer	2079322
	04/18/2019	04/22/2019 15:30	Elliott D. Healy	04/29/2019 20:23	Robert K Palmer	2079322
	04/18/2019	04/24/2019 17:30	Elliott D. Healy	04/26/2019 05:36	Martin Acosta	2079320
	04/18/2019	04/24/2019 17:30	Elliott D. Healy	04/26/2019 05:46	Martin Acosta	2079321
	04/18/2019	04/24/2019 17:30	Elliott D. Healy	05/01/2019 17:44	Martin Acosta	2079320
	04/18/2019	04/24/2019 17:30	Elliott D. Healy	05/01/2019 17:51	Martin Acosta	2079321
EPA 300.0	04/18/2019			04/23/2019 13:57	Lipi Saha	2079290
	04/18/2019			04/23/2019 14:31	Lipi Saha	2079303
	04/18/2019			04/23/2019 17:57	Lipi Saha	2079291
	04/18/2019			04/23/2019 18:14	Lipi Saha	2079296
	04/18/2019			04/23/2019 18:31	Lipi Saha	2079297
	04/18/2019			04/23/2019 18:48	Lipi Saha	2079302
	04/18/2019			04/23/2019 23:56	Lipi Saha	2079308
EPA 350.1 Rev. 2.0	04/18/2019			04/23/2019 13:25	Julia Storbeck	2079309
	04/18/2019			04/23/2019 15:16	Julia Storbeck	2079292
	04/18/2019			04/23/2019 15:17	Julia Storbeck	2079293
	04/18/2019			04/23/2019 15:19	Julia Storbeck	2079298
	04/18/2019			04/23/2019 15:20	Julia Storbeck	2079299
	04/18/2019			04/23/2019 15:22	Julia Storbeck	2079304
	04/18/2019			04/23/2019 15:23	Julia Storbeck	2079305
EPA 351.2 Rev. 2.0	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 10:45	Joseph Suarez	2079309
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 11:08	Joseph Suarez	2079292
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 11:10	Joseph Suarez	2079293
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 11:11	Joseph Suarez	2079298
	04/18/2019	04/25/2019 12:15	Adrian Shelby	04/26/2019 11:13	Joseph Suarez	2079299
	04/18/2019	04/30/2019 12:15	Adrian Shelby	05/02/2019 12:44	Joseph Suarez	2079304
	04/18/2019	04/30/2019 12:15	Adrian Shelby	05/02/2019 12:49	Joseph Suarez	2079305
EPA 353.2 Rev. 2.0	04/18/2019			04/23/2019 11:17	Beverly Y. Sanders	2079292
	04/18/2019			04/23/2019 11:24	Beverly Y. Sanders	2079293
	04/18/2019			04/23/2019 11:25	Beverly Y. Sanders	2079298
	04/18/2019			04/23/2019 11:26	Beverly Y. Sanders	2079299
	04/18/2019			04/23/2019 11:27	Beverly Y. Sanders	2079304
	04/18/2019			04/23/2019 11:28	Beverly Y. Sanders	2079305
	04/18/2019			04/24/2019 10:46	Beverly Y. Sanders	2079309
EPA 365.1 Rev. 2.0	04/18/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 12:11	Rosalyn Ballman	2079292

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	04/18/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 12:13	Rosalyn Ballman	2079293
	04/18/2019	04/24/2019 15:26	Sima Feizi	04/25/2019 14:48	Rosalyn Ballman	2079305
	04/18/2019	04/24/2019 15:26	Sima Feizi	04/25/2019 14:56	Rosalyn Ballman	2079304
	04/18/2019	04/24/2019 15:26	Sima Feizi	04/25/2019 18:54	Rosalyn Ballman	2079309
	04/18/2019	04/24/2019 15:26	Sima Feizi	04/25/2019 19:11	Rosalyn Ballman	2079298
	04/18/2019	04/24/2019 15:26	Sima Feizi	04/25/2019 19:12	Rosalyn Ballman	2079299
EPA 365.1 Rev. 2.0 dissolved	04/18/2019			04/18/2019 16:52	Julia Storbeck	2079310
	04/18/2019			04/18/2019 17:06	Julia Storbeck	2079300
	04/18/2019			04/18/2019 17:07	Julia Storbeck	2079301
	04/18/2019			04/18/2019 17:14	Julia Storbeck	2079294
	04/18/2019			04/18/2019 17:15	Julia Storbeck	2079295
	04/18/2019			04/18/2019 17:16	Julia Storbeck	2079306
SM 2320 B-97	04/18/2019			04/18/2019 17:17	Julia Storbeck	2079307
	04/18/2019			04/26/2019 10:48	Dale L. Simmons	2079308
	04/18/2019			04/26/2019 13:02	Dale L. Simmons	2079291
	04/18/2019			04/26/2019 13:15	Dale L. Simmons	2079303
	04/18/2019			04/26/2019 13:28	Dale L. Simmons	2079290
	04/18/2019			04/30/2019 19:40	Dale L. Simmons	2079296
SM 2540 D-97	04/18/2019			04/30/2019 19:53	Dale L. Simmons	2079297
	04/18/2019			04/30/2019 21:04	Dale L. Simmons	2079302
	04/18/2019			04/22/2019 18:35	Mariam Hanna	2079290, 2079291, 2079296, 2079297, 2079302, 2079303, 2079308
SM 4500 F-C-97	04/18/2019			04/26/2019 10:48	Dale L. Simmons	2079308
	04/18/2019			04/26/2019 13:02	Dale L. Simmons	2079291
	04/18/2019			04/26/2019 13:15	Dale L. Simmons	2079303
	04/18/2019			04/26/2019 13:28	Dale L. Simmons	2079290
	04/18/2019			04/30/2019 17:08	Dale L. Simmons	2079296
	04/18/2019			04/30/2019 17:12	Dale L. Simmons	2079297
SM 5310 B-00	04/18/2019			04/30/2019 17:16	Dale L. Simmons	2079302
	04/18/2019			04/20/2019 01:32	Julia Storbeck	2079292
	04/18/2019			04/20/2019 01:45	Julia Storbeck	2079293
	04/18/2019			04/20/2019 01:57	Julia Storbeck	2079305
	04/18/2019			04/20/2019 02:09	Julia Storbeck	2079309
	04/18/2019			04/20/2019 06:26	Julia Storbeck	2079298
	04/18/2019			04/20/2019 06:38	Julia Storbeck	2079299
	04/18/2019			04/20/2019 06:50	Julia Storbeck	2079304