

Chemical Analysis Report

NE-DIST-2019-04-25-02

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

Event Description: **LSJR Coast**
Request ID: **RQ-2019-04-22-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 16-MAY-2019 12:05

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: DUNN CR AT FAYE ROAD

Collection Date/Time: 04/24/2019 10:45

Field ID: 20030140

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081066	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P362881	
	EPA 300.0	Bromide	17		mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	83	A	mg CaCO3/L	P363248	
	SM 2540 D-97	TSS	10	IA	mg/L	P363130	
	SM 4500 F-C-97	Fluoride	0.39		mg F/L	P363251	
2081068	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P363042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P363188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P363158	
	EPA 365.1 Rev. 2.0	Total-P	0.093		mg P/L	P363108	MS
	SM 5310 B-00	Organic Carbon	11		mg C/L	P363084	
2081070	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P362869	
2081091	EPA 200.7 Rev. 4.4	Iron	400		ug/L	P363173	
		Manganese	25.1		ug/L	P363173	
		Zinc	5.0	U	ug/L	P363173	
	EPA 200.8 Rev. 5.4	Aluminum	260		ug/L	P363173	
		Antimony	0.20	U	ug/L	P363173	
		Arsenic	1.82		ug/L	P363173	
		Cadmium	0.080	U	ug/L	P363173	
		Chromium	4.0	U	ug/L	P363173	
		Copper	1.6	U	ug/L	P363173	
		Lead	0.80	U	ug/L	P363173	
		Nickel	2.0	U	ug/L	P363173	
		Selenium	2.0	U	ug/L	P363173	
		Silver	0.040	U	ug/L	P363173	
		Thallium	0.40	U	ug/L	P363173	

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: SISTERS CREEK AT HECKSCHER DR

Collection Date/Time: 04/24/2019 11:15

Field ID: 20030491

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081067	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P362881	
	EPA 300.0	Bromide	49		mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	100		mg CaCO3/L	P363495	
	SM 2540 D-97	TSS	8	I	mg/L	P363130	
	SM 4500 F-C-97	Fluoride	0.88		mg F/L	P363872	
2081069	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P363042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P363188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.070		mg N/L	P363158	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P363108	MS
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P363085	
2081071	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P362873	
2081092	EPA 200.7 Rev. 4.4	Iron	160	I	ug/L	P363173	
		Manganese	9.0	I	ug/L	P363173	
		Zinc	15	U	ug/L	P363173	
	EPA 200.8 Rev. 5.4	Aluminum	140	I	ug/L	P363173	
		Antimony	0.20	U	ug/L	P363173	
		Arsenic	2.14		ug/L	P363173	
		Cadmium	0.080	U	ug/L	P363173	
		Chromium	4.0	U	ug/L	P363173	
		Copper	1.6	U	ug/L	P363173	
		Lead	2.0	U	ug/L	P363173	
		Nickel	2.0	U	ug/L	P363173	
		Selenium	2.0	U	ug/L	P363173	
		Silver	0.040	U	ug/L	P363173	
		Thallium	1.0	U	ug/L	P363173	

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: DEER CR @ TALLEYRAND AVE

Collection Date/Time: 04/24/2019 10:00

Field ID: 20030792

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081060	EPA 180.1 Rev. 2.0	Turbidity	6.5	A	NTU	P362881	
	EPA 300.0	Bromide	0.56		mg Br/L	P363643	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P363360	
	SM 2540 D-97	TSS	4	IA	mg/L	P363126	
	SM 4500 F-C-97	Fluoride	0.53		mg F/L	P363364	
2081062	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P363042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P363188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P363158	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P363108	MS
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P363084	
2081064	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P362873	
2081089	EPA 200.7 Rev. 4.4	Iron	1.54E+03		ug/L	P363113	
		Manganese	119		ug/L	P363113	
		Zinc	11	I	ug/L	P363113	
	EPA 200.8 Rev. 5.4	Aluminum	169		ug/L	P363113	
		Antimony	0.15	I	ug/L	P363113	
		Arsenic	5.11		ug/L	P363113	
		Cadmium	0.035	I	ug/L	P363113	
		Chromium	1.3	I	ug/L	P363113	
		Copper	1.93		ug/L	P363113	
		Lead	2.79		ug/L	P363113	
		Nickel	0.56	I	ug/L	P363113	
		Selenium	0.20	U	ug/L	P363113	
		Silver	0.010	U	ug/L	P363113	
		Thallium	0.10	U	ug/L	P363113	

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: Greenfield end of Bucaneer dr.

Collection Date/Time: 04/24/2019 12:20

Field ID: G2NE1154

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081061	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P362880	
	EPA 300.0	Bromide	49		mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	102		mg CaCO3/L	P363495	
	SM 2540 D-97	TSS	8	I	mg/L	P363129	
	SM 4500 F-C-97	Fluoride	0.91		mg F/L	P363872	
2081063	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P363042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P363188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P363158	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P363108	MS
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P363085	
2081065	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P362873	
2081090	EPA 200.7 Rev. 4.4	Iron	200	I	ug/L	P363173	
		Manganese	8.7	I	ug/L	P363173	
		Zinc	15	U	ug/L	P363173	
	EPA 200.8 Rev. 5.4	Aluminum	220		ug/L	P363173	
		Antimony	0.21	I	ug/L	P363173	
		Arsenic	2.26		ug/L	P363173	
		Cadmium	0.080	U	ug/L	P363173	
		Chromium	4.0	U	ug/L	P363173	
		Copper	1.6	U	ug/L	P363173	
		Lead	2.0	U	ug/L	P363173	
		Nickel	2.0	U	ug/L	P363173	
		Selenium	2.0	U	ug/L	P363173	
		Silver	0.040	U	ug/L	P363173	
		Thallium	1.0	U	ug/L	P363173	

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: St.Johns River at Ft. Caroline dock

Collection Date/Time: 04/24/2019 12:25

Field ID: G2NE1154 DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081072	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P362880	
	EPA 300.0	Bromide	49		mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	101		mg CaCO3/L	P363495	
	SM 2540 D-97	TSS	8	I	mg/L	P363130	
	SM 4500 F-C-97	Fluoride	0.90		mg F/L	P363872	
2081073	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P363042	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P363188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P363158	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P363108	MS
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P363085	
2081074	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P362873	
2081093	EPA 200.7 Rev. 4.4	Iron	220	I	ug/L	P363173	
		Manganese	8.4	I	ug/L	P363173	
		Zinc	15	U	ug/L	P363173	
	EPA 200.8 Rev. 5.4	Aluminum	190	I	ug/L	P363173	
		Antimony	0.20	U	ug/L	P363173	
		Arsenic	2.10		ug/L	P363173	
		Cadmium	0.080	U	ug/L	P363173	
		Chromium	4.0	U	ug/L	P363173	
		Copper	1.6	U	ug/L	P363173	
		Lead	2.0	U	ug/L	P363173	
		Nickel	2.0	U	ug/L	P363173	
		Selenium	2.0	U	ug/L	P363173	
		Silver	0.040	U	ug/L	P363173	
		Thallium	1.0	U	ug/L	P363173	

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: Greenfield end of Bucaneer dr.

Collection Date/Time: 04/24/2019 12:35

Field ID: FB 04242019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081075	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P362881	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P363464	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P363360	
	SM 2540 D-97	TSS	2	U	mg/L	P363125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P363364	
2081076	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363189	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363011	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P363061	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363084	
2081077	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362874	
2081094	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P363113	
		Manganese	1.0	U	ug/L	P363113	
		Zinc	5.0	U	ug/L	P363113	
		Aluminum	5.0	U	ug/L	P363113	
	EPA 200.8 Rev. 5.4	Antimony	0.050	U	ug/L	P363113	
		Arsenic	0.050	U	ug/L	P363113	
		Cadmium	0.020	U	ug/L	P363113	
		Chromium	0.40	U	ug/L	P363113	
		Copper	0.40	U	ug/L	P363113	
		Lead	0.20	U	ug/L	P363113	
		Nickel	0.50	U	ug/L	P363113	
		Selenium	0.20	U	ug/L	P363113	
		Silver	0.010	U	ug/L	P363113	
		Thallium	0.10	U	ug/L	P363113	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362880

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362881

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363113

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: P363173

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: P363113

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: P363173

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: P363173

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: P363464

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0
Batch ID: P363643

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363042

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363188

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363189

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363011

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363158

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363061

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363108

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362869

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362874

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

Reference Method: SM 2320 B-97
Batch ID: P363248

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

Reference Method: SM 2320 B-97
Batch ID: P363360

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

Reference Method: SM 2320 B-97
Batch ID: P363495

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

Reference Method: SM 2540 D-97
Batch ID: P363125

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P363126

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363129

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363130

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363084

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

Reference Method: SM 5310 B-00
Batch ID: P363085

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: P363113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115
Manganese	98.2		P	85 - 115
Zinc	99.0		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Manganese	100		P	85 - 115
Zinc	99.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	99.8		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	95.6		P	85 - 115
Copper	100		P	85 - 115
Lead	96.4		P	85 - 115
Nickel	100		P	85 - 115
Selenium	101		P	85 - 115
Silver	102		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	93.2		P	70 - 130
Arsenic	97.0		P	70 - 130
Cadmium	103		P	85 - 115
Chromium	97.3		P	70 - 130
Copper	95.2		P	70 - 130
Lead	97.2		P	70 - 130
Nickel	96.2		P	70 - 130
Selenium	101		P	85 - 115
Silver	92.7		P	70 - 130
Thallium	98.1		P	70 - 130

Reference Method: EPA 300.0
Batch ID: P363464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	98.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0

Batch ID: P363643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P363042

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P363264

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: P363188

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P363189

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P363011

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P363158

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: P363061

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P363108

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362869

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362874

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

Reference Method: SM 2320 B-97
Batch ID: P363248

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

Reference Method: SM 2320 B-97
Batch ID: P363360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P363495

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

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P363872

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P363084

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

Reference Method: SM 5310 B-00
Batch ID: P363085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081423	Iron	108	106	P/P	80 - 120
2081423	Manganese	98.7	99.0	P/P	80 - 120
2081423	Zinc	99.3	100	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080892	Iron	103	103	P/P	80 - 120
2080892	Manganese	95.0	95.9	P/P	80 - 120
2080892	Zinc	99.5	100	P/P	80 - 120
2081091	Iron	101		P	80 - 120
2081091	Manganese	95.0		P	80 - 120
2081091	Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081423	Aluminum	100	100	P/P	80 - 120
2081423	Antimony	102	101	P/P	80 - 120
2081423	Arsenic	103	102	P/P	80 - 120
2081423	Cadmium	102	103	P/P	80 - 120
2081423	Chromium	94.6	94.7	P/P	80 - 120
2081423	Copper	97.9	96.9	P/P	80 - 120
2081423	Lead	95.9	96.2	P/P	80 - 120
2081423	Nickel	97.5	97.4	P/P	80 - 120
2081423	Selenium	99.8	101	P/P	80 - 120
2081423	Silver	102	104	P/P	80 - 120
2081423	Thallium	104	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080892	Aluminum	111	111	P/P	70 - 130
2080892	Antimony	101	95.2	P/P	70 - 130
2080892	Arsenic	109	104	P/P	70 - 130
2080892	Cadmium	99.2	97.6	P/P	70 - 130
2080892	Chromium	96.3	101	P/P	70 - 130
2080892	Copper	98.5	92.9	P/P	70 - 130
2080892	Lead	102	96.1	P/P	70 - 130
2080892	Nickel	98.0	93.5	P/P	70 - 130
2080892	Selenium	107	111	P/P	70 - 130
2080892	Silver	90.4	84.6	P/P	70 - 130
2080892	Thallium	102	96.3	P/P	70 - 130
2081091	Aluminum	106		P	70 - 130
2081091	Antimony	96.4		P	70 - 130
2081091	Arsenic	102		P	70 - 130
2081091	Cadmium	103		P	70 - 130
2081091	Chromium	98.5		P	70 - 130
2081091	Copper	92.4		P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081091	Lead	98.4		P	70 - 130
2081091	Nickel	92.1		P	70 - 130
2081091	Selenium	114		P	70 - 130
2081091	Silver	87.5		P	70 - 130
2081091	Thallium	97.4		P	70 - 130

Reference Method: EPA 300.0
Batch ID: P363464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080801	Bromide	96.0	95.0	P/P	90 - 110

Reference Method: EPA 300.0
Batch ID: P363643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082903	Bromide	95.9	94.8	P/P	90 - 110
2082953	Bromide	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080832	Ammonia-N	107	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081132	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080929	Kjeldahl Nitrogen	99.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081017	Kjeldahl Nitrogen	96.2	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081160	NO2NO3-N	99.5	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080930	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080997	Total-P	103	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081342	Total-P	92.4	89.4	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081070	O-Phosphate-P	96.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080759	O-Phosphate-P	97.6	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081134	O-Phosphate-P	96.6	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081066	Fluoride	97.2	97.2	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080993	Fluoride	97.9	100	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082745	Fluoride	96.6	96.6	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P363084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081062	Organic Carbon	101	101	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P363085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081342	Organic Carbon	99.5	98.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080995	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081060	Turbidity	0.309	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081423	Iron	1.82	Spike	P	0 - 20
2081423	Manganese	0.327	Spike	P	0 - 20
2081423	Zinc	0.699	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080892	Iron	0.0690	Spike	P	0 - 20
2080892	Manganese	0.905	Spike	P	0 - 20
2080892	Zinc	0.872	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081423	Aluminum	0.109	Spike	P	0 - 20
2081423	Antimony	0.0461	Spike	P	0 - 20
2081423	Arsenic	1.35	Spike	P	0 - 20
2081423	Cadmium	0.649	Spike	P	0 - 20
2081423	Chromium	0.147	Spike	P	0 - 20
2081423	Copper	1.05	Spike	P	0 - 20
2081423	Lead	0.354	Spike	P	0 - 20
2081423	Nickel	0.0398	Spike	P	0 - 20
2081423	Selenium	1.01	Spike	P	0 - 20
2081423	Silver	1.32	Spike	P	0 - 20
2081423	Thallium	0.698	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080892	Aluminum	0.461	Spike	P	0 - 20
2080892	Antimony	6.16	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080892	Arsenic	4.62	Spike	P	0 - 20
2080892	Cadmium	1.58	Spike	P	0 - 20
2080892	Chromium	4.80	Spike	P	0 - 20
2080892	Copper	5.87	Spike	P	0 - 20
2080892	Lead	5.67	Spike	P	0 - 20
2080892	Nickel	4.71	Spike	P	0 - 20
2080892	Selenium	3.75	Spike	P	0 - 20
2080892	Silver	6.68	Spike	P	0 - 20
2080892	Thallium	5.50	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080801	Bromide	0.557	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082903	Bromide	0.937	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080832	Ammonia-N	5.66	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081132	Ammonia-N	0.691	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080929	Kjeldahl Nitrogen	3.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081017	Kjeldahl Nitrogen	1.98	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081160	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080930	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080997	Total-P	3.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081342	Total-P	3.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081070	O-Phosphate-P	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080759	O-Phosphate-P	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081134	O-Phosphate-P	1.44	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081066	Total Alkalinity	0.908	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P363360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080993	Total Alkalinity	2.57	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P363495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082745	Total Alkalinity	0.925	Sample	P	0 - 2.8

Reference Method: SM 2540 D-97
Batch ID: P363125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081129	TSS	5.88	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081066	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080993	Fluoride	1.95	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082745	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081062	Organic Carbon	0.0826	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P363085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081342	Organic Carbon	0.541	Spike	P	0 - 20

Quality Assurance Report

Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91004

Included Lab Sample IDs: 2081064, 2081065, 2081070, 2081071, 2081074, 2081077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.7	94.2	P/P	90 - 110
O-Phosphate-P	95.1	94.7	P/P	90 - 110
O-Phosphate-P	95.7	95.1	P/P	90 - 110
O-Phosphate-P	99.5	97.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91005

Included Lab Sample IDs: 2081060, 2081061, 2081066, 2081067, 2081072, 2081075

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91059

Included Lab Sample IDs: 2081076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91072

Included Lab Sample IDs: 2081062, 2081063, 2081068, 2081069, 2081073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	102	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91089

Included Lab Sample IDs: 2081062, 2081063, 2081068, 2081069, 2081073, 2081076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	101	101	P/P	90 - 110
Organic Carbon	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91103

Included Lab Sample IDs: 2081076

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

Reference Method: EPA 300.0

Run ID: A91122

Included Lab Sample IDs: 2081061, 2081066, 2081067, 2081072, 2081075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	103	P/P	90 - 110
Bromide	96.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91123

Included Lab Sample IDs: 2081062, 2081063, 2081068, 2081069, 2081073

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91140

Included Lab Sample IDs: 2081089, 2081094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	103	P/P	95 - 105
Manganese	99.2	99.4	P/P	95 - 105
Zinc	103	104	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91146

Included Lab Sample IDs: 2081062, 2081063, 2081068, 2081069, 2081073

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

Reference Method: SM 2320 B-97

Run ID: A91158

Included Lab Sample IDs: 2081066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91158

Included Lab Sample IDs: 2081066

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91165

Included Lab Sample IDs: 2081076

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91169

Included Lab Sample IDs: 2081090, 2081091, 2081092, 2081093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	98.4	98.5	P/P	90 - 110
Iron	98.5	99.1	P/P	90 - 110
Manganese	98.7	98.8	P/P	90 - 110
Manganese	99.0	98.7	P/P	90 - 110
Zinc	98.7	99.2	P/P	90 - 110
Zinc	99.3	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A91204

Included Lab Sample IDs: 2081060, 2081075

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

Reference Method: SM 4500 F-C-97

Run ID: A91204

Included Lab Sample IDs: 2081060, 2081075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91214

Included Lab Sample IDs: 2081062, 2081063, 2081068, 2081069, 2081073, 2081076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	95.7	P/P	90 - 110
Kjeldahl Nitrogen	99.4	99.1	P/P	90 - 110
Kjeldahl Nitrogen	99.6	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91227

Included Lab Sample IDs: 2081089, 2081094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	99.9	P/P	90 - 110
Antimony	95.9	96.6	P/P	90 - 110
Arsenic	99.7	98.7	P/P	90 - 110
Cadmium	99.6	100	P/P	90 - 110
Chromium	100	100	P/P	90 - 110
Copper	100	99.6	P/P	90 - 110
Lead	97.3	97.0	P/P	90 - 110
Nickel	98.4	99.1	P/P	90 - 110
Selenium	99.5	98.7	P/P	90 - 110
Silver	100	100	P/P	90 - 110
Thallium	96.9	96.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91249

Included Lab Sample IDs: 2081061, 2081067, 2081072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91284

Included Lab Sample IDs: 2081090, 2081091, 2081092, 2081093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	93.8	94.3	P/P	90 - 110
Arsenic	92.6	92.2	P/P	90 - 110
Chromium	95.4	95.4	P/P	90 - 110
Copper	91.6	90.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91284

Included Lab Sample IDs: 2081090, 2081091, 2081092, 2081093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	94.0	93.9	P/P	90 - 110
Lead	94.9	94.6	P/P	90 - 110
Nickel	91.9	90.5	P/P	90 - 110
Silver	92.7	92.4	P/P	90 - 110
Thallium	91.3	91.0	P/P	90 - 110
Thallium	92.3	92.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91286

Included Lab Sample IDs: 2081090, 2081091, 2081092, 2081093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	107	P/P	90 - 110
Cadmium	101	103	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Selenium	103	105	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A91304

Included Lab Sample IDs: 2081060

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91334

Included Lab Sample IDs: 2081091, 2081092, 2081093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.9	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91393

Included Lab Sample IDs: 2081093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	98.5	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91397

Included Lab Sample IDs: 2081061, 2081067, 2081072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	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						1.19	
	Turbidity						0.309	
EPA 200.7 Rev. 4.4	Iron	106	108	106				1.82
	Iron	103	103	103	101			0.0690
	Manganese	98.2	98.7	99.0				0.327
	Manganese	100	95.0	95.9	95.0			0.905
	Zinc	99.0	99.3	100				0.699
	Zinc	99.3	99.5	100	100			0.872
EPA 200.8 Rev. 5.4	Aluminum	102	100	100				0.109
	Aluminum	101	111	111	106			0.461
	Antimony	99.8	102	101				0.0461
	Antimony	93.2	101	95.2	96.4			6.16
	Arsenic	101	103	102				1.35
	Arsenic	97.0	109	104	102			4.62
	Cadmium	103	102	103				0.649
	Cadmium	103	99.2	97.6	103			1.58
	Chromium	95.6	94.6	94.7				0.147
	Chromium	97.3	96.3	101	98.5			4.80
	Copper	100	97.9	96.9				1.05
	Copper	95.2	98.5	92.9	92.4			5.87
	Lead	96.4	95.9	96.2				0.354
	Lead	97.2	102	96.1	98.4			5.67
	Nickel	100	97.5	97.4				0.0398
	Nickel	96.2	98.0	93.5	92.1			4.71
	Selenium	101	99.8	101				1.01
	Selenium	101	107	111	114			3.75
	Silver	102	102	104				1.32
	Silver	92.7	90.4	84.6	87.5			6.68
	Thallium	103	104	104				0.698
	Thallium	98.1	102	96.3	97.4			5.50
EPA 300.0	Bromide	98.7	96.0	95.0				0.557
	Bromide	97.1	95.9	94.8	95.3			0.937
EPA 350.1 Rev. 2.0	Ammonia-N	106	107	100				5.66
	Ammonia-N	100	101	100				0.691
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.2	103				3.02
	Kjeldahl Nitrogen	103	96.2	99.8				1.98
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.5	100				1.00
	NO2NO3-N	100	103	103				0.0
EPA 365.1 Rev. 2.0	Total-P	104	103	107				3.37
	Total-P	100	92.4	89.4				3.23
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.4	97.8				0.990
	O-Phosphate-P	99.3	97.6	98.0				0.409
	O-Phosphate-P	97.9	96.6	98.5				1.44
SM 2320 B-97	Total Alkalinity	102					0.908	
	Total Alkalinity	101					2.57	
	Total Alkalinity	102					0.925	
SM 2540 D-97	TSS						5.88	
SM 4500 F-C-97	Fluoride	98.2	97.2	97.2				0.0
	Fluoride	97.6	97.9	100				1.95
	Fluoride	96.6	96.6	96.6				0.0
SM 5310 B-00	Organic Carbon	99.2	101	101				0.0826
	Organic Carbon	102	99.5	98.9				0.541

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2081089, 2081090, 2081091, 2081092, 2081093, 2081094
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2081089, 2081090, 2081091, 2081092, 2081093, 2081094
EPA 300.0 / E31780	Bromide in aqueous matrices	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2081062, 2081063, 2081068, 2081069, 2081073, 2081076
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2081062, 2081063, 2081068, 2081069, 2081073, 2081076
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2081062, 2081063, 2081068, 2081069, 2081073, 2081076
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2081062, 2081063, 2081068, 2081069, 2081073, 2081076
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2081064, 2081065, 2081070, 2081071, 2081074, 2081077
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2081062, 2081063, 2081068, 2081069, 2081073, 2081076

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	04/25/2019			04/25/2019 18:32	Julia Storbeck	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
EPA 200.7 Rev. 4.4	04/25/2019	04/30/2019 16:30	Elliott D. Healy	05/01/2019 15:08	Betina Topolski	2081094
	04/25/2019	04/30/2019 16:30	Elliott D. Healy	05/01/2019 15:27	Betina Topolski	2081089
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/02/2019 15:35	Betina Topolski	2081090
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/02/2019 15:44	Betina Topolski	2081091
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/02/2019 16:28	Betina Topolski	2081092
EPA 200.8 Rev. 5.4	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/02/2019 16:37	Betina Topolski	2081093
	04/25/2019	04/30/2019 16:30	Elliott D. Healy	05/06/2019 22:38	Robert K Palmer	2081094
	04/25/2019	04/30/2019 16:30	Elliott D. Healy	05/06/2019 23:07	Robert K Palmer	2081089
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 03:00	Robert K Palmer	2081090
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 03:10	Robert K Palmer	2081091
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 03:29	Robert K Palmer	2081092
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 04:07	Martin Acosta	2081090
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 04:16	Martin Acosta	2081091
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 04:35	Martin Acosta	2081092
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 04:45	Martin Acosta	2081093
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 08:03	Robert K Palmer	2081090
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 08:13	Robert K Palmer	2081091
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 09:12	Robert K Palmer	2081092
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 09:21	Martin Acosta	2081090
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 09:22	Robert K Palmer	2081093
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 09:31	Martin Acosta	2081091
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 09:50	Martin Acosta	2081092
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 09:59	Martin Acosta	2081093
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/09/2019 22:37	Robert K Palmer	2081091
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/09/2019 22:52	Robert K Palmer	2081092
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/09/2019 23:00	Robert K Palmer	2081093
	04/25/2019	05/01/2019 16:30	Elliott D. Healy	05/13/2019 20:43	Robert K Palmer	2081093
EPA 300.0	04/25/2019			05/02/2019 17:57	Lipi Saha	2081061
	04/25/2019			05/02/2019 18:14	Lipi Saha	2081066
	04/25/2019			05/02/2019 18:31	Lipi Saha	2081067
	04/25/2019			05/02/2019 18:48	Lipi Saha	2081072
	04/25/2019			05/02/2019 19:39	Lipi Saha	2081075
EPA 350.1 Rev. 2.0	04/25/2019			05/08/2019 16:57	Lipi Saha	2081060
	04/25/2019			04/29/2019 13:16	Ping Hua	2081068
	04/25/2019			04/29/2019 13:17	Ping Hua	2081069
	04/25/2019			04/29/2019 13:19	Ping Hua	2081073
	04/25/2019			04/29/2019 13:34	Ping Hua	2081062
	04/25/2019			04/29/2019 13:35	Ping Hua	2081063

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	04/25/2019			05/02/2019 11:43	Ping Hua	2081076
EPA 351.2 Rev. 2.0	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 10:55	Joseph Suarez	2081062
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 10:56	Joseph Suarez	2081063
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 11:01	Joseph Suarez	2081068
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 11:03	Joseph Suarez	2081069
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 11:04	Joseph Suarez	2081073
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 11:23	Joseph Suarez	2081076
EPA 353.2 Rev. 2.0	04/25/2019			04/29/2019 11:42	Beverly Y. Sanders	2081076
	04/25/2019			05/01/2019 10:54	Beverly Y. Sanders	2081062
	04/25/2019			05/01/2019 10:55	Beverly Y. Sanders	2081063
	04/25/2019			05/01/2019 10:56	Beverly Y. Sanders	2081073
	04/25/2019			05/01/2019 10:57	Beverly Y. Sanders	2081068
	04/25/2019			05/01/2019 10:58	Beverly Y. Sanders	2081069
EPA 365.1 Rev. 2.0	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 16:42	Rosalyn Ballman	2081076
	04/25/2019	04/30/2019 16:00	Sima Feizi	05/01/2019 15:58	Rosalyn Ballman	2081062
	04/25/2019	04/30/2019 16:00	Sima Feizi	05/01/2019 15:59	Rosalyn Ballman	2081063
	04/25/2019	04/30/2019 16:00	Sima Feizi	05/01/2019 16:00	Rosalyn Ballman	2081068
	04/25/2019	04/30/2019 16:00	Sima Feizi	05/01/2019 16:01	Rosalyn Ballman	2081069
	04/25/2019	04/30/2019 16:00	Sima Feizi	05/01/2019 16:02	Rosalyn Ballman	2081073
EPA 365.1 Rev. 2.0 dissolved	04/25/2019			04/25/2019 14:54	Jhamieka S. Greenwood	2081070
	04/25/2019			04/25/2019 16:25	Jhamieka S. Greenwood	2081071
	04/25/2019			04/25/2019 16:30	Jhamieka S. Greenwood	2081064
	04/25/2019			04/25/2019 16:31	Jhamieka S. Greenwood	2081065, 2081074
	04/25/2019			04/25/2019 16:42	Jhamieka S. Greenwood	2081077
SM 2320 B-97	04/25/2019			05/02/2019 08:26	Dale L. Simmons	2081066
	04/25/2019			05/04/2019 12:12	Samantha Davila	2081075
	04/25/2019			05/04/2019 12:51	Samantha Davila	2081060
	04/25/2019			05/07/2019 06:36	Dale L. Simmons	2081061
	04/25/2019			05/07/2019 06:48	Dale L. Simmons	2081067
	04/25/2019			05/07/2019 07:01	Dale L. Simmons	2081072
SM 2540 D-97	04/25/2019			04/29/2019 20:05	Mariam Hanna	2081060, 2081061, 2081066, 2081067, 2081072, 2081075
SM 4500 F-C-97	04/25/2019			05/02/2019 05:46	Dale L. Simmons	2081066
	04/25/2019			05/04/2019 12:12	Samantha Davila	2081075
	04/25/2019			05/04/2019 12:51	Samantha Davila	2081060
	04/25/2019			05/14/2019 06:35	Dale L. Simmons	2081061
	04/25/2019			05/14/2019 06:40	Dale L. Simmons	2081067
	04/25/2019			05/14/2019 06:44	Dale L. Simmons	2081072
SM 5310 B-00	04/25/2019			04/30/2019 00:43	Julia Storbeck	2081062
	04/25/2019			04/30/2019 02:33	Julia Storbeck	2081068

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	04/25/2019			04/30/2019 02:45	Julia Storbeck	2081076
	04/25/2019			04/30/2019 09:35	Julia Storbeck	2081063
	04/25/2019			04/30/2019 09:59	Julia Storbeck	2081069
	04/25/2019			04/30/2019 10:11	Julia Storbeck	2081073