

Chemical Analysis Report

NE-DIST-2019-05-22-01

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

Event Description: **Nassau East Boat**
Request ID: **RQ-2019-05-20-14**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 06-JUN-2019 10:40



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: THOMAS CR 6.0 MI BELOW CITY PRISON

Collection Date/Time: 05/21/2019 09:30

Field ID: G4NE0008

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088064	EPA 180.1 Rev. 2.0	Turbidity	6.5		NTU	P364432	
	EPA 300.0	Bromide	5.6		mg Br/L	P364503	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P364860	
	SM 2540 D-97	TSS	12		mg/L	P364886	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P364871	
2088066	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P364802	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P364822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364568	
	EPA 365.1 Rev. 2.0	Total-P	0.079		mg P/L	P364715	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P364513	
2088068	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P364403	
2088076	EPA 200.7 Rev. 4.4	Iron	460		ug/L	P364446	
		Manganese	38.7		ug/L	P364446	
		Zinc	6.8	I	ug/L	P364446	
	EPA 200.8 Rev. 5.4	Aluminum	306		ug/L	P364446	
		Antimony	0.050	U	ug/L	P364446	
		Arsenic	1.16		ug/L	P364446	
		Cadmium	0.020	U	ug/L	P364446	
		Chromium	0.72	I	ug/L	P364446	
		Copper	2.13		ug/L	P364446	
		Lead	0.33	I	ug/L	P364446	
		Nickel	0.53	I	ug/L	P364446	
		Selenium	0.20	U	ug/L	P364446	
		Silver	0.010	U	ug/L	P364446	
		Thallium	0.10	U	ug/L	P364446	

Sample Location: THOMAS CR 4 MI BELOW CITY PRISON

Collection Date/Time: 05/21/2019 09:50

Field ID: 19020033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088065	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P364432	
	EPA 300.0	Bromide	1.9		mg Br/L	P364503	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P364860	
	SM 2540 D-97	TSS	8	IA	mg/L	P364887	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P364871	
2088067	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P364806	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P364753	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P364520	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P364717	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P364512	
2088069	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P364402	
2088077	EPA 200.7 Rev. 4.4	Iron	410		ug/L	P364446	
		Manganese	25.8		ug/L	P364446	
		Zinc	9.3	I	ug/L	P364446	
	EPA 200.8 Rev. 5.4	Aluminum	188		ug/L	P364446	
		Antimony	0.050	U	ug/L	P364446	
		Arsenic	0.77		ug/L	P364446	
		Cadmium	0.020	U	ug/L	P364446	
		Chromium	0.48	I	ug/L	P364446	
		Copper	2.14		ug/L	P364446	
		Lead	0.35	I	ug/L	P364446	
		Nickel	0.50	U	ug/L	P364446	
		Selenium	0.20	U	ug/L	P364446	
		Silver	0.010	U	ug/L	P364446	
		Thallium	0.10	U	ug/L	P364446	

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: ALLIGATOR CR AT HOBBS LANDING

Collection Date/Time: 05/21/2019 11:00

Field ID: G4NE0280

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2088070	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P364432	
	EPA 300.0 Rev. 2.1	Chloride	500		mg Cl/L	P364629	
		Sulfate	69		mg SO4/L	P364632	
	SM 2120 B	Color (true)	180		PCU	P364406	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	912		mg/L	P364925	
	SM 2540 D-97	TSS	4	I	mg/L	P364885	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P364871	
2088071	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P364806	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P364754	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P364520	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P364717	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P364512	
2088072	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P364402	
2088078	EPA 200.7 Rev. 4.4	Barium	38.0		ug/L	P364577	
		Calcium	27.8		mg/L	P364577	
		Iron	370		ug/L	P364577	
		Magnesium	33.7		mg/L	P364577	
		Potassium	9.3		mg/L	P364577	
		Sodium	275		mg/L	P364577	
		Zinc	5.0	U	ug/L	P364577	
	EPA 200.8 Rev. 5.4	Aluminum	147		ug/L	P364577	
		Antimony	0.050	I	ug/L	P364577	
		Arsenic	0.69		ug/L	P364577	
		Boron**	141		ug/L	P364577	
		Cadmium	0.020	U	ug/L	P364577	
		Chromium	0.43	I	ug/L	P364577	
		Copper	0.40	U	ug/L	P364577	
		Lead	0.27	I	ug/L	P364577	
		Nickel	0.50	U	ug/L	P364577	
		Selenium	0.20	U	ug/L	P364577	
		Silver	0.010	U	ug/L	P364577	
		Thallium	0.10	U	ug/L	P364577	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364432

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364446

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: P364577

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364446

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: P364577

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364577

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

Reference Method: EPA 300.0
Batch ID: P364503

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364629

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364802

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364806

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364754

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364822

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364520

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364568

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364715

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364717

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364402

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364403

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

Reference Method: SM 2120 B
Batch ID: P364406

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364860

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

Reference Method: SM 2540 C-97
Batch ID: P364925

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P364885

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364886

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364887

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364512

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

Reference Method: SM 5310 B-00
Batch ID: P364513

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: P364446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Manganese	101		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	105		P	85 - 115
Iron	101		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	100		P	85 - 115
Sodium	103		P	85 - 115
Zinc	98.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.7		P	85 - 115
Antimony	97.3		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	98.7		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	98.3		P	85 - 115
Lead	100		P	85 - 115
Nickel	97.8		P	85 - 115
Selenium	98.3		P	85 - 115
Silver	98.4		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	104		P	85 - 115
Boron	102		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	101		P	85 - 115
Copper	102		P	85 - 115
Lead	95.3		P	85 - 115
Nickel	102		P	85 - 115
Selenium	103		P	85 - 115
Silver	101		P	85 - 115
Thallium	104		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P364503

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364629

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364802

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364806

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364754

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364520

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364715

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364717

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364402

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364403

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

Reference Method: SM 2120 B
Batch ID: P364406

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

Reference Method: SM 2320 B-97
Batch ID: P364860

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

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364512

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P364513

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087740	Iron	105		P	80 - 120
2087740	Manganese	101		P	80 - 120
2087740	Zinc	104		P	80 - 120
2088058	Iron	105	104	P/P	80 - 120
2088058	Manganese	105	101	P/P	80 - 120
2088058	Zinc	108	104	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088440	Barium	103		P	80 - 120
2088440	Calcium	104		P	80 - 120
2088440	Iron	107		P	80 - 120
2088440	Magnesium	106		P	80 - 120
2088440	Potassium	103		P	80 - 120
2088440	Sodium	106		P	80 - 120
2088440	Zinc	101		P	80 - 120
2089219	Barium	102	99.7	P/P	80 - 120
2089219	Calcium	105	104	P/P	80 - 120
2089219	Iron	104	101	P/P	80 - 120
2089219	Magnesium	105	103	P/P	80 - 120
2089219	Potassium	108	105	P/P	80 - 120
2089219	Sodium	105	102	P/P	80 - 120
2089219	Zinc	98.8	97.1	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087740	Aluminum	97.4		P	80 - 120
2087740	Antimony	99.7		P	80 - 120
2087740	Arsenic	102		P	80 - 120
2087740	Cadmium	100		P	80 - 120
2087740	Chromium	96.0		P	80 - 120
2087740	Copper	94.9		P	80 - 120
2087740	Lead	102		P	80 - 120
2087740	Nickel	96.4		P	80 - 120
2087740	Selenium	101		P	80 - 120
2087740	Silver	97.0		P	80 - 120
2087740	Thallium	104		P	80 - 120
2088058	Aluminum	98.3	98.3	P/P	80 - 120
2088058	Antimony	101	101	P/P	80 - 120
2088058	Arsenic	101	102	P/P	80 - 120
2088058	Cadmium	99.5	103	P/P	80 - 120
2088058	Chromium	96.3	95.9	P/P	80 - 120
2088058	Copper	95.9	95.1	P/P	80 - 120
2088058	Lead	102	102	P/P	80 - 120
2088058	Nickel	97.9	97.6	P/P	80 - 120
2088058	Selenium	100	99.4	P/P	80 - 120
2088058	Silver	96.6	97.2	P/P	80 - 120
2088058	Thallium	104	105	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088440	Aluminum	101		P	80 - 120
2088440	Antimony	103		P	80 - 120
2088440	Arsenic	106		P	80 - 120
2088440	Boron	104		P	80 - 120
2088440	Cadmium	106		P	80 - 120
2088440	Chromium	101		P	80 - 120
2088440	Copper	102		P	80 - 120
2088440	Lead	97.7		P	80 - 120
2088440	Nickel	101		P	80 - 120
2088440	Selenium	105		P	80 - 120
2088440	Silver	103		P	80 - 120
2088440	Thallium	106		P	80 - 120
2089219	Aluminum	101	101	P/P	80 - 120
2089219	Antimony	102	101	P/P	80 - 120
2089219	Arsenic	102	101	P/P	80 - 120
2089219	Boron	104	105	P/P	80 - 120
2089219	Cadmium	104	102	P/P	80 - 120
2089219	Chromium	101	101	P/P	80 - 120
2089219	Copper	102	100	P/P	80 - 120
2089219	Lead	96.7	94.7	P/P	80 - 120
2089219	Nickel	101	100	P/P	80 - 120
2089219	Selenium	102	101	P/P	80 - 120
2089219	Silver	103	101	P/P	80 - 120
2089219	Thallium	106	105	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P364503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088065	Bromide	99.6	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087942	Chloride	101		P	90 - 110
2087979	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087942	Sulfate	98.7		P	90 - 110
2087979	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087886	Ammonia-N	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088100	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087987	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087891	Kjeldahl Nitrogen	109	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088055	NO2NO3-N	99.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087889	NO2NO3-N	96.1	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087889	Total-P	99.4	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088111	Total-P	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088102	O-Phosphate-P	96.6	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088068	O-Phosphate-P	93.3	94.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088010	Fluoride	100	98.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087912	Organic Carbon	94.5	94.7	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P364513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088100	Organic Carbon	94.1	96.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088028	Turbidity	4.03	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088058	Iron	1.49	Spike	P	0 - 20
2088058	Manganese	3.42	Spike	P	0 - 20
2088058	Zinc	3.74	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089219	Barium	1.85	Spike	P	0 - 20
2089219	Calcium	0.619	Spike	P	0 - 20
2089219	Iron	2.64	Spike	P	0 - 20
2089219	Magnesium	1.15	Spike	P	0 - 20
2089219	Potassium	2.62	Spike	P	0 - 20
2089219	Sodium	2.16	Spike	P	0 - 20
2089219	Zinc	1.71	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088058	Aluminum	0.0119	Spike	P	0 - 20
2088058	Antimony	0.0164	Spike	P	0 - 20
2088058	Arsenic	0.395	Spike	P	0 - 20
2088058	Cadmium	3.09	Spike	P	0 - 20
2088058	Chromium	0.444	Spike	P	0 - 20
2088058	Copper	0.679	Spike	P	0 - 20
2088058	Lead	0.155	Spike	P	0 - 20
2088058	Nickel	0.301	Spike	P	0 - 20
2088058	Selenium	0.787	Spike	P	0 - 20
2088058	Silver	0.560	Spike	P	0 - 20
2088058	Thallium	1.12	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089219	Aluminum	0.791	Spike	P	0 - 20
2089219	Antimony	0.837	Spike	P	0 - 20
2089219	Arsenic	1.30	Spike	P	0 - 20
2089219	Boron	0.679	Spike	P	0 - 20
2089219	Cadmium	2.14	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089219	Chromium	0.288	Spike	P	0 - 20
2089219	Copper	1.31	Spike	P	0 - 20
2089219	Lead	2.13	Spike	P	0 - 20
2089219	Nickel	0.730	Spike	P	0 - 20
2089219	Selenium	0.667	Spike	P	0 - 20
2089219	Silver	1.71	Spike	P	0 - 20
2089219	Thallium	1.81	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P364503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088065	Bromide	0.394	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087942	Chloride	0.0277	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087942	Sulfate	0.0332	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087886	Ammonia-N	0.240	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088100	Ammonia-N	0.256	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087987	Kjeldahl Nitrogen	2.08	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088084	Kjeldahl Nitrogen	1.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087891	Kjeldahl Nitrogen	5.78	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088055	NO2NO3-N	2.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087889	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087889	Total-P	2.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088111	Total-P	1.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088102	O-Phosphate-P	0.722	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088068	O-Phosphate-P	0.660	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P364406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088120	Color (true)	2.04	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P364860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	Total Alkalinity	0.367	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P364925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	TDS	1.76	Sample	P	0 - 10

Reference Method: SM 2540 D-97
 Batch ID: P364886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088082	TSS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P364871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	Fluoride	0.986	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P364512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087912	Organic Carbon	0.181	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P364513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088100	Organic Carbon	2.35	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 365.1 Rev. 2.0 dissolved

Run ID: A91603

Included Lab Sample IDs: 2088068, 2088069, 2088072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	96.4	P/P	90 - 110
O-Phosphate-P	99.1	97.7	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A91604

Included Lab Sample IDs: 2088070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91617

Included Lab Sample IDs: 2088064, 2088065, 2088070

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91642

Included Lab Sample IDs: 2088070

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

Reference Method: EPA 300.0

Run ID: A91648

Included Lab Sample IDs: 2088064, 2088065

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91657

Included Lab Sample IDs: 2088067, 2088071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91661

Included Lab Sample IDs: 2088066, 2088067, 2088071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	96.4	P/P	90 - 110
Organic Carbon	96.4	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91672

Included Lab Sample IDs: 2088076, 2088077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	101	P/P	90 - 110
Manganese	102	103	P/P	90 - 110
Zinc	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91682

Included Lab Sample IDs: 2088066

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	97.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91730

Included Lab Sample IDs: 2088078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	106	P/P	95 - 105
Calcium	104	103	P/P	95 - 105
Iron	104	102	P/P	95 - 105
Magnesium	103	101	P/P	95 - 105
Potassium	103	102	P/P	95 - 105
Sodium	103	103	P/P	95 - 105
Zinc	103	106	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91743

Included Lab Sample IDs: 2088076, 2088077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	95.5	95.4	P/P	90 - 110
Antimony	96.2	95.0	P/P	90 - 110
Arsenic	94.1	94.8	P/P	90 - 110
Cadmium	95.8	94.8	P/P	90 - 110
Chromium	94.2	93.5	P/P	90 - 110
Copper	93.4	93.4	P/P	90 - 110
Lead	96.7	97.2	P/P	90 - 110
Nickel	93.4	93.9	P/P	90 - 110
Selenium	95.7	95.7	P/P	90 - 110
Silver	93.8	92.8	P/P	90 - 110
Thallium	94.0	93.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91768

Included Lab Sample IDs: 2088078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	102	P/P	90 - 110
Antimony	99.2	99.5	P/P	90 - 110
Arsenic	104	102	P/P	90 - 110
Boron	100	106	P/P	90 - 110
Cadmium	101	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91768

Included Lab Sample IDs: 2088078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	101	102	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Lead	96.3	96.0	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Selenium	103	102	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Thallium	98.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91780

Included Lab Sample IDs: 2088066, 2088067, 2088071

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91785

Included Lab Sample IDs: 2088067, 2088071

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91790

Included Lab Sample IDs: 2088066

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

Reference Method: SM 2320 B-97

Run ID: A91798

Included Lab Sample IDs: 2088064, 2088065, 2088070

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

Reference Method: SM 4500 F-C-97

Run ID: A91799

Included Lab Sample IDs: 2088064, 2088065, 2088070

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91810

Included Lab Sample IDs: 2088066, 2088067, 2088071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110
Kjeldahl Nitrogen	104	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91810

Included Lab Sample IDs: 2088066, 2088067, 2088071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	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						4.03	
EPA 200.7 Rev. 4.4	Barium	101	103	102	99.7			1.85
	Calcium	105	104	105	104			0.619
	Iron	103	105	105	104			1.49
	Iron	101	107	104	101			2.64
	Magnesium	104	106	105	103			1.15
	Manganese	101	101	105	101			3.42
	Potassium	100	103	108	105			2.62
	Sodium	103	102	106	105			2.16
	Zinc	101	104	108	104			3.74
	Zinc	98.2	101	98.8	97.1			1.71
EPA 200.8 Rev. 5.4	Aluminum	97.7	97.4	98.3	98.3			0.0119
	Aluminum	100	101	101	101			0.791
	Antimony	97.3	99.7	101	101			0.0164
	Antimony	101	103	102	101			0.837
	Arsenic	101	102	101	102			0.395
	Arsenic	104	106	102	101			1.30
	Boron	102	104	104	105			0.679
	Cadmium	98.7	100	99.5	103			3.09
	Cadmium	103	106	104	102			2.14
	Chromium	97.9	96.0	96.3	95.9			0.444
	Chromium	101	101	101	101			0.288
	Copper	98.3	94.9	95.9	95.1			0.679
	Copper	102	102	102	100			1.31
	Lead	100	102	102	102			0.155
	Lead	95.3	97.7	96.7	94.7			2.13
	Nickel	97.8	96.4	97.9	97.6			0.301
	Nickel	102	101	101	100			0.730
	Selenium	98.3	101	100	99.4			0.787
	Selenium	103	105	102	101			0.667
	Silver	98.4	97.0	96.6	97.2			0.560
	Silver	101	103	103	101			1.71
	Thallium	101	104	104	105			1.12
	Thallium	104	106	106	105			1.81
EPA 300.0	Bromide	103	99.6	99.0				0.394
EPA 300.0 Rev. 2.1	Chloride	100	101	100			0.0277	
	Sulfate	99.1	98.7	99.5			0.0332	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	103				0.240
	Ammonia-N	103	102	102				0.256
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	109	106				2.08
	Kjeldahl Nitrogen	109						1.52
	Kjeldahl Nitrogen	102	109	103				5.78
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	99.5	97.0				2.54
	NO2NO3-N	97.5	96.1	96.1				0.0
EPA 365.1 Rev. 2.0	Total-P	97.9	99.4	96.9				2.42
	Total-P	100	102	104				1.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	96.6	97.3				0.722
	O-Phosphate-P	98.6	93.3	94.1				0.660
SM 2120 B	Color (true)	101					2.04	
SM 2320 B-97	Total Alkalinity	105					0.367	
SM 2540 C-97	TDS						1.76	
SM 2540 D-97	TSS						6.90	
SM 4500 F-C-97	Fluoride	98.9	100	98.8				0.986
SM 5310 B-00	Organic Carbon	96.4	94.5	94.7				0.181

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 5310 B-00	Organic Carbon	97.1	94.1	96.7	SMP	2.35

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2088064, 2088065, 2088070
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2088076, 2088077, 2088078
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2088076, 2088077, 2088078
EPA 300.0 / E31780	Bromide in aqueous matrices	2088064, 2088065
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2088070
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2088070
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2088066, 2088067, 2088071
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2088066, 2088067, 2088071
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2088066, 2088067, 2088071
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2088066, 2088067, 2088071
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2088068, 2088069, 2088072
SM 2120 B / E31780	True Color measured at 450 nm	2088070
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2088064, 2088065, 2088070
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2088070
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2088064, 2088065, 2088070
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2088064, 2088065, 2088070
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2088066, 2088067, 2088071

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	05/22/2019			05/22/2019 14:38	Sima Feizi	2088064, 2088065, 2088070
EPA 200.7 Rev. 4.4	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/24/2019 19:48	Betina Topolski	2088076
	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/24/2019 20:07	Betina Topolski	2088077
	05/22/2019	05/28/2019 13:50	Elliott D. Healy	05/29/2019 15:45	Betina Topolski	2088078
	05/22/2019	05/28/2019 13:50	Elliott D. Healy	05/29/2019 15:49	Betina Topolski	2088078
EPA 200.8 Rev. 5.4	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/30/2019 01:11	Martin Acosta	2088076
	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/30/2019 01:30	Martin Acosta	2088077
	05/22/2019	05/28/2019 13:50	Elliott D. Healy	05/30/2019 21:39	Robert K Palmer	2088078
EPA 300.0	05/22/2019			05/23/2019 16:42	Lipi Saha	2088065
	05/22/2019			05/23/2019 18:07	Lipi Saha	2088064
EPA 300.0 Rev. 2.1	05/22/2019			05/25/2019 05:39	Lipi Saha	2088070
EPA 350.1 Rev. 2.0	05/22/2019			05/24/2019 12:01	Ping Hua	2088066
	05/22/2019			05/24/2019 13:44	Ping Hua	2088067
	05/22/2019			05/24/2019 13:46	Ping Hua	2088071
EPA 351.2 Rev. 2.0	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 10:53	Joseph Suarez	2088067
	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 11:01	Joseph Suarez	2088071
	05/22/2019	05/31/2019 13:15	Adrian Shelby	06/03/2019 12:21	Joseph Suarez	2088066
EPA 353.2 Rev. 2.0	05/22/2019			05/24/2019 11:16	Beverly Y. Sanders	2088067
	05/22/2019			05/24/2019 11:18	Beverly Y. Sanders	2088071
	05/22/2019			05/28/2019 10:45	Beverly Y. Sanders	2088066
EPA 365.1 Rev. 2.0	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 12:01	Rosalyn Ballman	2088067
	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 12:02	Rosalyn Ballman	2088071
	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 15:31	Rosalyn Ballman	2088066
EPA 365.1 Rev. 2.0 dissolved	05/22/2019			05/22/2019 15:49	Jhamieka S. Greenwood	2088068
	05/22/2019			05/22/2019 15:58	Jhamieka S. Greenwood	2088069
	05/22/2019			05/22/2019 15:59	Jhamieka S. Greenwood	2088072
SM 2120 B	05/22/2019			05/22/2019 16:07	Madeline Funaro	2088070
SM 2320 B-97	05/22/2019			06/02/2019 04:59	Dale L. Simmons	2088070
	05/22/2019			06/02/2019 05:08	Dale L. Simmons	2088065
	05/22/2019			06/02/2019 05:43	Dale L. Simmons	2088064
SM 2540 C-97	05/22/2019			05/23/2019 16:02	Yijie Li	2088070
SM 2540 D-97	05/22/2019			05/23/2019 16:02	Yijie Li	2088064, 2088065, 2088070
SM 4500 F-C-97	05/22/2019			05/31/2019 13:03	Dale L. Simmons	2088070
	05/22/2019			05/31/2019 13:14	Dale L. Simmons	2088065
	05/22/2019			05/31/2019 14:04	Dale L. Simmons	2088064
SM 5310 B-00	05/22/2019			05/23/2019 10:08	Julia Storbeck	2088067
	05/22/2019			05/23/2019 10:21	Julia Storbeck	2088071
	05/22/2019			05/24/2019 12:24	Julia Storbeck	2088066