

Chemical Analysis Report

NE-DIST-2019-05-09-03

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

Event Description: **LSJR Southside**
Request ID: **RQ-2019-05-06-30**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 31-MAY-2019 14:34

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: BIG POTTSBURG CR BOWDEN RD

Collection Date/Time: 05/08/2019 12:10

Field ID: 20030068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085127	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P363736	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P363953	
		Sulfate	30		mg SO4/L	P363954	
		Color (true)	64		PCU	P363727	
	SM 2120 B	Total Alkalinity	65		mg CaCO3/L	P364259	
	SM 2540 C-97	TDS	178	A	mg/L	P364268	
	SM 2540 D-97	TSS	2	IA	mg/L	P364254	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P364263	
2085128	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P364045	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P364078	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P364121	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P364080	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P364050	
2085129	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P363701	
2085140	EPA 200.7 Rev. 4.4	Barium	26.2		ug/L	P363918	
		Calcium	33.4		mg/L	P363918	
		Iron	490		ug/L	P363918	
		Magnesium	6.64		mg/L	P363918	
		Potassium	1.6		mg/L	P363918	
		Sodium	13.3		mg/L	P363918	
		Zinc	5.0	U	ug/L	P363918	
	EPA 200.8 Rev. 5.4	Aluminum	44		ug/L	P363918	
		Antimony	0.19	I	ug/L	P363918	
		Arsenic	0.99		ug/L	P363918	
		Boron**	28.4		ug/L	P363918	
		Cadmium	0.020	U	ug/L	P363918	
		Chromium	0.40	U	ug/L	P363918	
		Copper	2.20		ug/L	P363918	
		Lead	0.20	U	ug/L	P363918	
		Nickel	1.7	I	ug/L	P363918	
		Selenium	0.20	U	ug/L	P363918	
		Silver	0.010	U	ug/L	P363918	
		Thallium	0.10	U	ug/L	P363918	

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: Miramar at San Jose

Collection Date/Time: 05/08/2019 10:50

Field ID: G2NE1164

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085130	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P363736	
	EPA 300.0 Rev. 2.1	Chloride	800		mg Cl/L	P363953	
		Sulfate	170		mg SO4/L	P363954	
		Color (true)	32		PCU	P363727	
	SM 2320 B-97	Total Alkalinity	105		mg CaCO3/L	P364172	
	SM 2540 C-97	TDS	1.71E+03		mg/L	P364268	
	SM 2540 D-97	TSS	3	I	mg/L	P364254	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P364266	
2085132	EPA 350.1 Rev. 2.0	Ammonia-N	0.30		mg N/L	P364047	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P364077	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.60		mg N/L	P364646	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P364081	MS
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P364050	
2085134	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.080		mg P/L	P363701	
2085141	EPA 200.7 Rev. 4.4	Barium	51.6		ug/L	P364004	
		Calcium	57.3		mg/L	P364004	
		Iron	750		ug/L	P364004	
		Magnesium	55.6		mg/L	P364004	
		Potassium	16.4		mg/L	P364004	
		Sodium	454		mg/L	P364004	
		Zinc	5.0	U	ug/L	P364004	
	EPA 200.8 Rev. 5.4	Aluminum	31	I	ug/L	P364004	
		Antimony	0.20	U	ug/L	P364004	
		Arsenic	0.75	I	ug/L	P364004	
		Boron**	230		ug/L	P364004	
		Cadmium	0.080	U	ug/L	P364004	
		Chromium	4.0	U	ug/L	P364004	
		Copper	1.6	U	ug/L	P364004	
		Lead	0.80	U	ug/L	P364004	
		Nickel	2.0	U	ug/L	P364004	
		Selenium	0.80	U	ug/L	P364004	
		Silver	0.040	U	ug/L	P364004	
		Thallium	0.40	U	ug/L	P364004	

Ref. Method and Comment:

SM 2540 C-97: The TDS result is consistent with the conductivity measured in the laboratory, 3200 unmhos/cm.

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable because of high analyte concentration in the QC sample.

Sample Location: CORMORANT BRANCH @ MARBON RD

Collection Date/Time: 05/08/2019 09:40

Field ID: 20030852

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2085131	EPA 180.1 Rev. 2.0	Turbidity	5.1	A	NTU	P363737	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P363953	
		Sulfate	16		mg SO4/L	P363954	
		Color (true)	54		PCU	P363727	
	SM 2120 B	Total Alkalinity	73		mg CaCO3/L	P364259	
	SM 2540 C-97	TDS	150		mg/L	P364268	
	SM 2540 D-97	TSS	3	I	mg/L	P364254	
	SM 4500 F-C-97	Fluoride	0.099	I	mg F/L	P364263	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P364045	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P364078	
2085133	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P364121	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P364080	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P364050	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.054		mg P/L	P363701	
	dissolved						
2085142	EPA 200.7 Rev. 4.4	Barium	37.3		ug/L	P363918	
		Calcium	29.6		mg/L	P363918	
		Iron	1.44E+03		ug/L	P363918	
		Magnesium	5.66		mg/L	P363918	
		Potassium	1.8		mg/L	P363918	
		Sodium	13.6		mg/L	P363918	
		Zinc	5.0	U	ug/L	P363918	
		Aluminum	23		ug/L	P363918	
		Antimony	0.071	I	ug/L	P363918	
		Arsenic	1.50		ug/L	P363918	
	EPA 200.8 Rev. 5.4	Boron**	26.6		ug/L	P363918	
		Cadmium	0.020	U	ug/L	P363918	
		Chromium	0.40	U	ug/L	P363918	
		Copper	1.54		ug/L	P363918	
		Lead	0.20	U	ug/L	P363918	
		Nickel	0.50	U	ug/L	P363918	
		Selenium	0.20	U	ug/L	P363918	
		Silver	0.010	U	ug/L	P363918	
		Thallium	0.10	U	ug/L	P363918	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363736

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363737

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363918

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 200.7 Rev. 4.4
Batch ID: P364004

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: P363918

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364004

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363953

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363954

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364045

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364047

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364077

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364078

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: P364121

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364646

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364080

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364081

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363701

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

Reference Method: SM 2120 B
Batch ID: P363727

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364172

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

Reference Method: SM 2320 B-97
Batch ID: P364259

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

Reference Method: SM 2540 C-97
Batch ID: P364268

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P364254

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364263

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P364266

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364050

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: P363918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	109		P	85 - 115
Iron	106		P	85 - 115
Magnesium	113		P	85 - 115
Potassium	102		P	85 - 115
Sodium	102		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	96.8		P	85 - 115
Calcium	95.5		P	85 - 115
Iron	95.2		P	85 - 115
Magnesium	94.6		P	85 - 115
Potassium	94.8		P	85 - 115
Sodium	99.2		P	85 - 115
Zinc	95.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	105		P	85 - 115
Boron	101		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	101		P	85 - 115
Copper	104		P	85 - 115
Lead	93.9		P	85 - 115
Nickel	104		P	85 - 115
Selenium	104		P	85 - 115
Silver	103		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	98.8		P	85 - 115
Arsenic	102		P	85 - 115
Boron	103		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	99.8		P	85 - 115
Copper	98.5		P	85 - 115
Lead	96.0		P	85 - 115
Nickel	98.7		P	85 - 115
Selenium	102		P	85 - 115
Silver	102		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364004

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363953

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363954

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364045

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364047

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364077

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: P364078

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364646

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364080

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364081

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363701

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

Reference Method: SM 2120 B
Batch ID: P363727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P364259

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

Reference Method: SM 4500 F-C-97
Batch ID: P364263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P364266

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

Reference Method: SM 5310 B-00
Batch ID: P364050

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085213	Barium	101		P	80 - 120
2085213	Calcium	104		P	80 - 120
2085213	Iron	109		P	80 - 120
2085213	Magnesium	103		P	80 - 120
2085213	Potassium	99.7		P	80 - 120
2085213	Sodium	101		P	80 - 120
2085213	Zinc	101		P	80 - 120
2085651	Barium	101	101	P/P	80 - 120
2085651	Calcium	107	107	P/P	80 - 120
2085651	Iron	106	105	P/P	80 - 120
2085651	Magnesium	111	110	P/P	80 - 120
2085651	Potassium	106	106	P/P	80 - 120
2085651	Sodium	103	104	P/P	80 - 120
2085651	Zinc	101	101	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085088	Barium	90.9	90.9	P/P	70 - 130
2085088	Iron	93.2	91.9	P/P	70 - 130
2085088	Zinc	93.5	93.1	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085213	Aluminum	99.9		P	80 - 120
2085213	Antimony	102		P	80 - 120
2085213	Arsenic	103		P	80 - 120
2085213	Boron	103		P	80 - 120
2085213	Cadmium	104		P	80 - 120
2085213	Chromium	99.9		P	80 - 120
2085213	Copper	99.4		P	80 - 120
2085213	Lead	97.0		P	80 - 120
2085213	Nickel	100		P	80 - 120
2085213	Selenium	101		P	80 - 120
2085213	Silver	101		P	80 - 120
2085213	Thallium	106		P	80 - 120
2085651	Aluminum	111	108	P/P	80 - 120
2085651	Antimony	110	107	P/P	80 - 120
2085651	Arsenic	111	109	P/P	80 - 120
2085651	Boron	116	114	P/P	80 - 120
2085651	Cadmium	113	111	P/P	80 - 120
2085651	Chromium	112	110	P/P	80 - 120
2085651	Copper	111	110	P/P	80 - 120
2085651	Lead	110	107	P/P	80 - 120
2085651	Nickel	112	110	P/P	80 - 120
2085651	Selenium	109	105	P/P	80 - 120
2085651	Silver	112	110	P/P	80 - 120
2085651	Thallium	120	116	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085088	Aluminum	112	112	P/P	70 - 130
2085088	Antimony	102	102	P/P	70 - 130
2085088	Arsenic	109	108	P/P	70 - 130
2085088	Cadmium	98.2	97.4	P/P	70 - 130
2085088	Chromium	93.7	93.8	P/P	70 - 130
2085088	Copper	95.0	94.3	P/P	70 - 130
2085088	Lead	102	101	P/P	70 - 130
2085088	Nickel	91.3	91.1	P/P	70 - 130
2085088	Selenium	105	104	P/P	70 - 130
2085088	Silver	96.1	95.9	P/P	70 - 130
2085088	Thallium	103	105	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085101	Chloride	97.2		P	90 - 110
2085181	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085101	Sulfate	96.8		P	90 - 110
2085181	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085176	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085074	Ammonia-N	102	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084991	Kjeldahl Nitrogen	98.9	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085160	Kjeldahl Nitrogen	106	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085128	NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088319	NO2NO3-N	98.2	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085128	Total-P	93.9	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085152	Total-P	89.9	88.4	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085037	O-Phosphate-P	90.3	91.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085112	Fluoride	100	98.1	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085804	Fluoride	98.8	101	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085035	Organic Carbon	98.2	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P363736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085061	Turbidity	3.10	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P363737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085131	Turbidity	0.391	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P363918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085651	Barium	0.0602	Spike	P	0 - 20
2085651	Calcium	0.593	Spike	P	0 - 20
2085651	Iron	0.571	Spike	P	0 - 20
2085651	Magnesium	0.604	Spike	P	0 - 20
2085651	Potassium	0.566	Spike	P	0 - 20
2085651	Sodium	0.473	Spike	P	0 - 20
2085651	Zinc	0.163	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P364004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085088	Barium	0.0280	Spike	P	0 - 20
2085088	Calcium	1.42	Spike	P	0 - 20
2085088	Iron	1.32	Spike	P	0 - 20
2085088	Magnesium	3.82	Spike	P	0 - 20
2085088	Potassium	3.16	Spike	P	0 - 20
2085088	Sodium	2.43	Spike	P	0 - 20
2085088	Zinc	0.507	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P363918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085651	Aluminum	2.12	Spike	P	0 - 20
2085651	Antimony	2.69	Spike	P	0 - 20
2085651	Arsenic	1.91	Spike	P	0 - 20
2085651	Boron	1.65	Spike	P	0 - 20
2085651	Cadmium	1.88	Spike	P	0 - 20
2085651	Chromium	1.70	Spike	P	0 - 20
2085651	Copper	0.900	Spike	P	0 - 20
2085651	Lead	3.23	Spike	P	0 - 20
2085651	Nickel	1.79	Spike	P	0 - 20
2085651	Selenium	4.15	Spike	P	0 - 20
2085651	Silver	1.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085651	Thallium	2.80	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085088	Aluminum	0.0753	Spike	P	0 - 20
2085088	Antimony	0.606	Spike	P	0 - 20
2085088	Arsenic	0.351	Spike	P	0 - 20
2085088	Boron	0.560	Spike	P	0 - 20
2085088	Cadmium	0.836	Spike	P	0 - 20
2085088	Chromium	0.191	Spike	P	0 - 20
2085088	Copper	0.736	Spike	P	0 - 20
2085088	Lead	0.830	Spike	P	0 - 20
2085088	Nickel	0.275	Spike	P	0 - 20
2085088	Selenium	1.27	Spike	P	0 - 20
2085088	Silver	0.138	Spike	P	0 - 20
2085088	Thallium	1.43	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085101	Chloride	0.711	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085101	Sulfate	0.00855	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085176	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085074	Ammonia-N	2.26	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084991	Kjeldahl Nitrogen	1.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085160	Kjeldahl Nitrogen	1.92	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085128	NO2NO3-N	0.633	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088319	NO2NO3-N	1.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085128	Total-P	0.644	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085152	Total-P	1.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085037	O-Phosphate-P	1.54	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P363727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085062	Color (true)	4.53	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P364172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084080	Total Alkalinity	0.393	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
 Batch ID: P364259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085112	Total Alkalinity	0.366	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P364268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085127	TDS	2.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P364263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085112	Fluoride	1.45	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P364266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085804	Fluoride	1.41	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P364050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085035	Organic Carbon	0.641	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: A91331

Included Lab Sample IDs: 2085129, 2085134, 2085135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	98.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A91338

Included Lab Sample IDs: 2085127, 2085130, 2085131

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91343

Included Lab Sample IDs: 2085127, 2085130, 2085131

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91404

Included Lab Sample IDs: 2085127, 2085130, 2085131

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91468

Included Lab Sample IDs: 2085128, 2085132, 2085133

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

Reference Method: SM 5310 B-00

Run ID: A91470

Included Lab Sample IDs: 2085128, 2085132, 2085133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	99.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91484

Included Lab Sample IDs: 2085140, 2085142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	100	P/P	95 - 105
Calcium	102	103	P/P	95 - 105
Iron	102	101	P/P	95 - 105
Magnesium	103	102	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91484

Included Lab Sample IDs: 2085140, 2085142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	100	100	P/P	95 - 105
Sodium	100	99.8	P/P	95 - 105
Zinc	103	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91494

Included Lab Sample IDs: 2085128, 2085133

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

Reference Method: SM 2320 B-97

Run ID: A91513

Included Lab Sample IDs: 2085130

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91515

Included Lab Sample IDs: 2085140, 2085142

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.3	98.7	P/P	90 - 110
Antimony	96.7	96.4	P/P	90 - 110
Arsenic	103	101	P/P	90 - 110
Boron	95.9	102	P/P	90 - 110
Cadmium	98.8	99.4	P/P	90 - 110
Chromium	99.7	101	P/P	90 - 110
Lead	93.5	94.2	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Silver	98.6	98.6	P/P	90 - 110
Thallium	95.8	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91516

Included Lab Sample IDs: 2085128, 2085132, 2085133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.2	P/P	90 - 110
Kjeldahl Nitrogen	107	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91517

Included Lab Sample IDs: 2085141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.0	97.5	P/P	90 - 110
Calcium	97.2	98.9	P/P	90 - 110
Iron	97.5	97.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91517

Included Lab Sample IDs: 2085141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	97.0	96.8	P/P	90 - 110
Potassium	99.9	97.8	P/P	90 - 110
Sodium	102	101	P/P	90 - 110
Zinc	97.2	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91536

Included Lab Sample IDs: 2085128, 2085132, 2085133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	101	101	P/P	90 - 110
Total-P	99.9	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91542

Included Lab Sample IDs: 2085140, 2085142

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

Reference Method: SM 2320 B-97

Run ID: A91544

Included Lab Sample IDs: 2085127, 2085131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91544

Included Lab Sample IDs: 2085127, 2085130, 2085131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91613

Included Lab Sample IDs: 2085141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	105	P/P	90 - 110
Antimony	98.6	97.3	P/P	90 - 110
Arsenic	104	102	P/P	90 - 110
Boron	104	110	P/P	90 - 110
Cadmium	102	101	P/P	90 - 110
Copper	102	102	P/P	90 - 110
Lead	98.0	98.6	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Selenium	103	103	P/P	90 - 110
Silver	103	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91613

Included Lab Sample IDs: 2085141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	97.4	97.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91681

Included Lab Sample IDs: 2085141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.4	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91712

Included Lab Sample IDs: 2085132

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	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						3.10	
	Turbidity						0.391	
EPA 200.7 Rev. 4.4	Barium	101	101	101	101			0.0602
	Barium	96.8	90.9	90.9				0.0280
	Calcium	109	104	107	107			0.593
	Calcium	95.5						1.42
	Iron	106	109	106	105			0.571
	Iron	95.2	93.2	91.9				1.32
	Magnesium	113	103	111	110			0.604
	Magnesium	94.6						3.82
	Potassium	102	99.7	106	106			0.566
	Potassium	94.8						3.16
	Sodium	102	101	103	104			0.473
	Sodium	99.2						2.43
	Zinc	100	101	101	101			0.163
	Zinc	95.5	93.5	93.1				0.507
EPA 200.8 Rev. 5.4	Aluminum	101	99.9	111	108			2.12
	Aluminum	101	112	112				0.0753
	Antimony	101	102	110	107			2.69
	Antimony	98.8	102	102				0.606
	Arsenic	105	103	111	109			1.91
	Arsenic	102	109	108				0.351
	Boron	101	103	116	114			1.65
	Boron	103						0.560
	Cadmium	104	104	113	111			1.88
	Cadmium	100	98.2	97.4				0.836
	Chromium	101	99.9	112	110			1.70
	Chromium	99.8	93.7	93.8				0.191
	Copper	104	99.4	111	110			0.900
	Copper	98.5	95.0	94.3				0.736
	Lead	93.9	97.0	110	107			3.23
	Lead	96.0	102	101				0.830
	Nickel	104	100	112	110			1.79
	Nickel	98.7	91.3	91.1				0.275
	Selenium	104	101	109	105			4.15
	Selenium	102	105	104				1.27
	Silver	103	101	112	110			1.65
	Silver	102	96.1	95.9				0.138
	Thallium	101	106	120	116			2.80
	Thallium	102	103	105				1.43
EPA 300.0 Rev. 2.1	Chloride	98.6	97.2	99.1			0.711	
	Sulfate	98.5	96.8	98.7			0.0085	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	103				1.37
	Ammonia-N	101	102	105				2.26
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	98.9	96.6				1.97
	Kjeldahl Nitrogen	106	106	109				1.92
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	100	99.0				0.633
	NO2NO3-N	99.0	98.2	99.6				1.32
EPA 365.1 Rev. 2.0	Total-P	98.0	93.9	94.6				0.644
	Total-P	99.0	89.9	88.4				1.63
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	90.3	91.7				1.54
SM 2120 B	Color (true)	99.6					4.53	
SM 2320 B-97	Total Alkalinity	103					0.393	
	Total Alkalinity	102					0.366	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
					LCS	
SM 2540 C-97	TDS				2.25	
SM 4500 F-C-97	Fluoride	98.5	100	98.1		1.45
	Fluoride	97.9	98.8	101		1.41
SM 5310 B-00	Organic Carbon	98.1	98.2	97.3		0.641

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2085127, 2085130, 2085131
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2085140, 2085141, 2085142
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2085140, 2085141, 2085142
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2085127, 2085130, 2085131
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2085127, 2085130, 2085131
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2085128, 2085132, 2085133
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2085128, 2085132, 2085133
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2085128, 2085132, 2085133
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2085128, 2085132, 2085133
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2085129, 2085134, 2085135
SM 2120 B / E31780	True Color measured at 450 nm	2085127, 2085130, 2085131
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2085127, 2085130, 2085131
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2085127, 2085130, 2085131
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2085127, 2085130, 2085131
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2085127, 2085130, 2085131
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2085128, 2085132, 2085133

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	05/09/2019			05/09/2019 16:45	Sima Feizi	2085127, 2085130, 2085131
EPA 200.7 Rev. 4.4	05/09/2019	05/14/2019 13:50	Elliott D. Healy	05/15/2019 14:52	Betina Topolski	2085140
	05/09/2019	05/14/2019 13:50	Elliott D. Healy	05/15/2019 14:57	Betina Topolski	2085142
	05/09/2019	05/15/2019 17:15	Elliott D. Healy	05/17/2019 17:32	Betina Topolski	2085141
	05/09/2019	05/15/2019 17:15	Elliott D. Healy	05/17/2019 17:42	Betina Topolski	2085141
EPA 200.8 Rev. 5.4	05/09/2019	05/14/2019 13:50	Elliott D. Healy	05/15/2019 19:26	Robert K Palmer	2085140
	05/09/2019	05/14/2019 13:50	Elliott D. Healy	05/15/2019 19:36	Robert K Palmer	2085142
	05/09/2019	05/14/2019 13:50	Elliott D. Healy	05/20/2019 16:17	Robert K Palmer	2085140
	05/09/2019	05/14/2019 13:50	Elliott D. Healy	05/20/2019 16:26	Robert K Palmer	2085142
	05/09/2019	05/15/2019 17:15	Elliott D. Healy	05/22/2019 19:36	Robert K Palmer	2085141
	05/09/2019	05/15/2019 17:15	Elliott D. Healy	05/25/2019 06:29	Robert K Palmer	2085141
EPA 300.0 Rev. 2.1	05/09/2019			05/14/2019 17:03	Lipi Saha	2085127
	05/09/2019			05/14/2019 17:40	Lipi Saha	2085130
	05/09/2019			05/14/2019 17:52	Lipi Saha	2085131
EPA 350.1 Rev. 2.0	05/09/2019			05/15/2019 12:36	Ping Hua	2085128
	05/09/2019			05/15/2019 12:37	Ping Hua	2085133
	05/09/2019			05/15/2019 14:31	Ping Hua	2085132
EPA 351.2 Rev. 2.0	05/09/2019	05/16/2019 12:45	Adrian Shelby	05/17/2019 16:49	Joseph Suarez	2085132
	05/09/2019	05/16/2019 12:45	Adrian Shelby	05/17/2019 17:04	Joseph Suarez	2085128
	05/09/2019	05/16/2019 12:45	Adrian Shelby	05/17/2019 17:06	Joseph Suarez	2085133
EPA 353.2 Rev. 2.0	05/09/2019			05/17/2019 10:01	Beverly Y. Sanders	2085128
	05/09/2019			05/17/2019 10:07	Beverly Y. Sanders	2085133
	05/09/2019			05/29/2019 09:46	Beverly Y. Sanders	2085132
EPA 365.1 Rev. 2.0	05/09/2019	05/16/2019 14:45	Adrian Shelby	05/17/2019 18:25	Rosalyn Ballman	2085128
	05/09/2019	05/16/2019 14:45	Adrian Shelby	05/17/2019 18:32	Rosalyn Ballman	2085133
	05/09/2019	05/16/2019 14:45	Adrian Shelby	05/17/2019 18:48	Rosalyn Ballman	2085132
EPA 365.1 Rev. 2.0 dissolved	05/09/2019			05/09/2019 14:41	Jhamieka S. Greenwood	2085134
	05/09/2019			05/09/2019 14:42	Jhamieka S. Greenwood	2085129
	05/09/2019			05/09/2019 14:44	Jhamieka S. Greenwood	2085135
SM 2120 B	05/09/2019			05/09/2019 14:55	Blanca Fach	2085127
	05/09/2019			05/09/2019 14:56	Blanca Fach	2085130
	05/09/2019			05/09/2019 14:57	Blanca Fach	2085131
SM 2320 B-97	05/09/2019			05/17/2019 08:40	Dale L. Simmons	2085130
	05/09/2019			05/18/2019 07:08	Dale L. Simmons	2085127
	05/09/2019			05/18/2019 07:20	Dale L. Simmons	2085131
SM 2540 C-97	05/09/2019			05/14/2019 14:06	Yijie Li	2085127, 2085130, 2085131
SM 2540 D-97	05/09/2019			05/14/2019 14:06	Yijie Li	2085127, 2085130, 2085131
SM 4500 F-C-97	05/09/2019			05/18/2019 07:08	Dale L. Simmons	2085127
	05/09/2019			05/18/2019 07:20	Dale L. Simmons	2085131
	05/09/2019			05/18/2019 22:20	Dale L. Simmons	2085130

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	05/09/2019			05/16/2019 02:56	Julia Storbeck	2085128
	05/09/2019			05/16/2019 03:09	Julia Storbeck	2085132
	05/09/2019			05/16/2019 03:23	Julia Storbeck	2085133