

Chemical Analysis Report

NW-DIST-2019-06-04-01

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

Event Description: **SHOAL RIVER**
Request ID: **RQ-2019-06-03-22**
Customer: **NW-DIST**
Project ID: **SMP**

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

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-JUN-2019 11:07

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: Yellow River below Nichols Creek Confluence Collection Date/Time: 06/03/2019 10:20

Field ID: G4NW0270

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090952	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P365008	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P365309	
		Sulfate	1.0		mg SO4/L	P365312	
		Color (true)	26		PCU	P365013	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P365401	RPD
	SM 2540 C-97	TDS	26		mg/L	P365620	
	SM 2540 D-97	TSS	10	I	mg/L	P365625	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365404	
2090953	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P365213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P365254	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P365198	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P365190	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P365296	
2090954	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364999	

Sample Location: Yellow River below Trammel Creek

Collection Date/Time: 06/03/2019 11:30

Field ID: G4NW0311

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090940	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P365008	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P365309	
		Sulfate	1.1		mg SO4/L	P365312	
		Color (true)	22	A	PCU	P365013	
	SM 2320 B-97	Total Alkalinity	38		mg CaCO3/L	P365401	RPD
	SM 2540 C-97	TDS	42		mg/L	P365620	
	SM 2540 D-97	TSS	4	I	mg/L	P365625	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365404	
2090944	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P365213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P365254	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P365197	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P365189	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P365295	
2090948	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364999	
2090966	EPA 200.7 Rev. 4.4	Barium	18.1		ug/L	P365226	
		Calcium	12.9		mg/L	P365226	
		Iron	560		ug/L	P365226	
		Magnesium	2.37		mg/L	P365226	
		Potassium	0.47	I	mg/L	P365226	
		Sodium	2.1		mg/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	106		ug/L	P365226	
		Antimony	0.050	U	ug/L	P365226	
		Arsenic	0.38		ug/L	P365226	
		Boron**	8.4		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.40	U	ug/L	P365226	
		Lead	0.20	U	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Sample Location: Shoal River near Rattlesnake Bluff

Collection Date/Time: 06/03/2019 12:40

Field ID: G4NW0493

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090941	EPA 180.1 Rev. 2.0	Turbidity	6.1	A	NTU	P365008	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P365309	
		Sulfate	1.1		mg SO4/L	P365312	
	SM 2120 B	Color (true)	34		PCU	P365013	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P365401	RPD
	SM 2540 C-97	TDS	23	I	mg/L	P365620	
	SM 2540 D-97	TSS	12		mg/L	P365625	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365404	
2090945	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P365213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P365254	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P365197	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P365189	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P365295	
2090949	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364999	
2090967	EPA 200.7 Rev. 4.4	Barium	14.4		ug/L	P365226	
		Calcium	1.96		mg/L	P365226	
		Iron	490		ug/L	P365226	
		Magnesium	0.87		mg/L	P365226	
		Potassium	0.47	I	mg/L	P365226	
		Sodium	1.9	I	mg/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	227		ug/L	P365226	
		Antimony	0.050	U	ug/L	P365226	
		Arsenic	0.30		ug/L	P365226	
		Boron**	8.9		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.40	U	ug/L	P365226	
		Lead	0.34	I	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Sample Location: Shoal River below Juniper Creek

Collection Date/Time: 06/03/2019 13:45

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090942	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P365008	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P365309	
		Sulfate	1.1		mg SO4/L	P365312	
		Color (true)	31		PCU	P365013	
	SM 2120 B	Total Alkalinity	5.5		mg CaCO3/L	P365401	RPD
	SM 2540 C-97	TDS	20	I	mg/L	P365620	
	SM 2540 D-97	TSS	6	I	mg/L	P365625	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365404	
2090946	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P365213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P365254	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P365197	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P365190	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P365295	
2090950	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364999	
2090968	EPA 200.7 Rev. 4.4	Barium	13.8		ug/L	P365226	
		Calcium	1.97		mg/L	P365226	
		Iron	380		ug/L	P365226	
		Magnesium	0.88		mg/L	P365226	
		Potassium	0.44	I	mg/L	P365226	
		Sodium	1.8	I	mg/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	112		ug/L	P365226	
		Antimony	0.050	U	ug/L	P365226	
		Arsenic	0.24		ug/L	P365226	
		Boron**	9.0		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.40	U	ug/L	P365226	
		Lead	0.20	U	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Sample Location: Shoal River upstream Bill Dugger Park SR-85 Collection Date/Time: 06/03/2019 14:10

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090943	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P365008	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P365309	
		Sulfate	1.1		mg SO4/L	P365312	
		Color (true)	32		PCU	P365013	
	SM 2120 B	Total Alkalinity	5.7		mg CaCO3/L	P365401	RPD
	SM 2540 C-97	TDS	17	I	mg/L	P365620	
	SM 2540 D-97	TSS	6	I	mg/L	P365625	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365404	
2090947	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P365213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P365254	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P365197	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P365190	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P365296	
2090951	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364999	
2090969	EPA 200.7 Rev. 4.4	Barium	14.6		ug/L	P365226	
		Calcium	2.07		mg/L	P365226	
		Iron	430		ug/L	P365226	
		Magnesium	0.93		mg/L	P365226	
		Potassium	0.42	I	mg/L	P365226	
		Sodium	1.7	I	mg/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	152		ug/L	P365226	
		Antimony	0.050	U	ug/L	P365226	
		Arsenic	0.26		ug/L	P365226	
		Boron**	9.0		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.40	U	ug/L	P365226	
		Lead	0.20	I	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Sample Location: Shoal River below Titi Creek

Collection Date/Time: 06/03/2019 15:25

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090937	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P365008	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P365309	
		Sulfate	1.1		mg SO4/L	P365312	
		Color (true)	31		PCU	P365013	
	SM 2120 B	Total Alkalinity	5.4		mg CaCO3/L	P365401	RPD
	SM 2540 C-97	TDS	15	U	mg/L	P365619	
	SM 2540 D-97	TSS	5	I	mg/L	P365624	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365404	
2090938	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P365213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P365254	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P365197	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P365189	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P365295	
2090939	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364999	
2090965	EPA 200.7 Rev. 4.4	Barium	14.3		ug/L	P365226	
		Calcium	2.03		mg/L	P365226	
		Iron	430		ug/L	P365226	
		Magnesium	0.92		mg/L	P365226	
		Potassium	0.46	I	mg/L	P365226	
		Sodium	1.7	I	mg/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
		Aluminum	134		ug/L	P365226	
		Antimony	0.050	U	ug/L	P365226	
		Arsenic	0.23		ug/L	P365226	
	EPA 200.8 Rev. 5.4	Boron**	8.8		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.40	U	ug/L	P365226	
		Lead	0.20	U	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

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: P365008

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365226

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: P365226

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: P365309

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365312

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365213

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365254

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365197

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365198

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365190

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

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

Reference Method: SM 2120 B
Batch ID: P365013

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P365401

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

Reference Method: SM 2540 C-97
Batch ID: P365619

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P365620

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365624

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365625

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365295

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

Reference Method: SM 5310 B-00
Batch ID: P365296

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: P365226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	104		P	85 - 115
Sodium	106		P	85 - 115
Zinc	99.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.6		P	85 - 115
Antimony	99.6		P	85 - 115
Arsenic	101		P	85 - 115
Boron	100		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	102		P	85 - 115
Copper	99.7		P	85 - 115
Lead	95.3		P	85 - 115
Nickel	101		P	85 - 115
Selenium	99.5		P	85 - 115
Silver	99.7		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365254

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365197

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365190

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

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

Reference Method: SM 2120 B
Batch ID: P365013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P365401

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

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P365295

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P365296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091050	Barium	102		P	80 - 120
2091050	Calcium	106		P	80 - 120
2091050	Iron	105		P	80 - 120
2091050	Magnesium	105		P	80 - 120
2091050	Potassium	100		P	80 - 120
2091050	Sodium	107		P	80 - 120
2091050	Zinc	101		P	80 - 120
2091397	Barium	102	101	P/P	80 - 120
2091397	Calcium	104		P	80 - 120
2091397	Iron	106	105	P/P	80 - 120
2091397	Magnesium	108	107	P/P	80 - 120
2091397	Potassium	106	103	P/P	80 - 120
2091397	Sodium	107	103	P/P	80 - 120
2091397	Zinc	100	99.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091050	Aluminum	97.4		P	80 - 120
2091050	Antimony	99.7		P	80 - 120
2091050	Arsenic	99.5		P	80 - 120
2091050	Boron	99.3		P	80 - 120
2091050	Cadmium	100		P	80 - 120
2091050	Chromium	100		P	80 - 120
2091050	Copper	98.7		P	80 - 120
2091050	Lead	94.4		P	80 - 120
2091050	Nickel	99.4		P	80 - 120
2091050	Selenium	96.2		P	80 - 120
2091050	Silver	98.5		P	80 - 120
2091050	Thallium	101		P	80 - 120
2091397	Aluminum	97.1	99.1	P/P	80 - 120
2091397	Antimony	98.5	99.4	P/P	80 - 120
2091397	Arsenic	99.1	99.3	P/P	80 - 120
2091397	Boron	98.8	102	P/P	80 - 120
2091397	Cadmium	101	101	P/P	80 - 120
2091397	Chromium	97.9	99.7	P/P	80 - 120
2091397	Copper	96.0	97.2	P/P	80 - 120
2091397	Lead	92.9	94.0	P/P	80 - 120
2091397	Nickel	97.8	99.0	P/P	80 - 120
2091397	Selenium	95.8	96.9	P/P	80 - 120
2091397	Silver	99.8	99.4	P/P	80 - 120
2091397	Thallium	100	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090578	Chloride	98.1		P	90 - 110
2090980	Chloride	95.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090578	Sulfate	97.1		P	90 - 110
2090980	Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090944	Ammonia-N	98.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090944	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090911	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090953	NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090911	Total-P	100	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091003	Total-P	101	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090951	O-Phosphate-P	98.6	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090335	Fluoride	96.1	96.6	P/P	89 - 106

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P365295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090580	Organic Carbon	91.8	91.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090947	Organic Carbon	93.6	93.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090941	Turbidity	6.68	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091397	Barium	1.22	Spike	P	0 - 20
2091397	Calcium	1.32	Spike	P	0 - 20
2091397	Iron	0.437	Spike	P	0 - 20
2091397	Magnesium	0.273	Spike	P	0 - 20
2091397	Potassium	1.73	Spike	P	0 - 20
2091397	Sodium	2.22	Spike	P	0 - 20
2091397	Zinc	0.724	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091397	Aluminum	1.99	Spike	P	0 - 20
2091397	Antimony	0.928	Spike	P	0 - 20
2091397	Arsenic	0.163	Spike	P	0 - 20
2091397	Boron	3.18	Spike	P	0 - 20
2091397	Cadmium	0.307	Spike	P	0 - 20
2091397	Chromium	1.82	Spike	P	0 - 20
2091397	Copper	1.30	Spike	P	0 - 20
2091397	Lead	1.10	Spike	P	0 - 20
2091397	Nickel	1.19	Spike	P	0 - 20
2091397	Selenium	1.13	Spike	P	0 - 20
2091397	Silver	0.412	Spike	P	0 - 20
2091397	Thallium	2.34	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090980	Chloride	0.104	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090980	Sulfate	0.0554	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090944	Ammonia-N	2.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090944	Kjeldahl Nitrogen	2.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090911	NO2NO3-N	0.514	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090953	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090911	Total-P	0.281	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091003	Total-P	2.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090951	O-Phosphate-P	0.707	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P365013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090940	Color (true)	3.06	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P365401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090335	Total Alkalinity	4.94	Sample	F	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P365619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090910	TDS	6.42	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P365620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090995	TDS	1.68	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P365625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090995	TSS	9.84	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090335	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P365295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090580	Organic Carbon	0.749	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P365296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090947	Organic Carbon	0.239	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: A91848

Included Lab Sample IDs: 2090939, 2090948, 2090949, 2090950, 2090951, 2090954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.9	P/P	90 - 110
O-Phosphate-P	99.5	99.6	P/P	90 - 110
O-Phosphate-P	99.6	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91849

Included Lab Sample IDs: 2090937, 2090940, 2090941, 2090942, 2090943, 2090952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A91850

Included Lab Sample IDs: 2090937, 2090940, 2090941, 2090942, 2090943, 2090952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91854

Included Lab Sample IDs: 2090937, 2090940, 2090941, 2090942, 2090943, 2090952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	101	P/P	90 - 110
Sulfate	99.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91913

Included Lab Sample IDs: 2090938, 2090944, 2090945, 2090946, 2090947, 2090953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.0	P/P	90 - 110
NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91914

Included Lab Sample IDs: 2090938, 2090944, 2090945, 2090946, 2090947, 2090953

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91942

Included Lab Sample IDs: 2090938, 2090944, 2090945, 2090946, 2090947, 2090953

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A91953

Included Lab Sample IDs: 2090938, 2090944, 2090945, 2090946, 2090947, 2090953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.9	96.0	P/P	90 - 110
Organic Carbon	96.0	96.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91962

Included Lab Sample IDs: 2090965, 2090966, 2090967, 2090968, 2090969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	103	P/P	95 - 105
Barium	103	102	P/P	90 - 110
Calcium	103	104	P/P	90 - 110
Calcium	103	103	P/P	95 - 105
Iron	103	103	P/P	95 - 105
Iron	103	102	P/P	90 - 110
Magnesium	102	103	P/P	95 - 105
Magnesium	103	102	P/P	90 - 110
Potassium	102	102	P/P	95 - 105
Potassium	102	102	P/P	90 - 110
Sodium	101	101	P/P	95 - 105
Sodium	101	104	P/P	90 - 110
Zinc	101	104	P/P	95 - 105
Zinc	104	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92001

Included Lab Sample IDs: 2090938, 2090944, 2090945, 2090946, 2090947, 2090953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	98.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92009

Included Lab Sample IDs: 2090937, 2090940, 2090941, 2090942, 2090943, 2090952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A92009

Included Lab Sample IDs: 2090937, 2090940, 2090941, 2090942, 2090943, 2090952

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92153

Included Lab Sample IDs: 2090965, 2090966, 2090967, 2090968, 2090969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	98.6	P/P	90 - 110
Aluminum	98.6	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92153

Included Lab Sample IDs: 2090965, 2090966, 2090967, 2090968, 2090969

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	96.7	97.4	P/P	90 - 110
Antimony	96.9	96.7	P/P	90 - 110
Arsenic	98.0	99.2	P/P	90 - 110
Arsenic	99.5	98.0	P/P	90 - 110
Boron	101	105	P/P	90 - 110
Boron	99.2	101	P/P	90 - 110
Cadmium	99.7	100	P/P	90 - 110
Cadmium	100	99.1	P/P	90 - 110
Chromium	101	103	P/P	90 - 110
Chromium	103	95.9	P/P	90 - 110
Copper	100	99.7	P/P	90 - 110
Copper	99.9	100	P/P	90 - 110
Lead	94.1	95.4	P/P	90 - 110
Lead	95.4	94.8	P/P	90 - 110
Nickel	100	99.8	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Selenium	97.5	98.4	P/P	90 - 110
Selenium	98.4	97.7	P/P	90 - 110
Silver	96.9	97.6	P/P	90 - 110
Silver	97.6	97.4	P/P	90 - 110
Thallium	94.5	95.0	P/P	90 - 110
Thallium	95.0	94.0	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					6.68	
EPA 200.7 Rev. 4.4	Barium	103	102	102	101		1.22
	Calcium	104	106	104			1.32
	Iron	106	105	106	105		0.437
	Magnesium	109	105	108	107		0.273
	Potassium	104	100	106	103		1.73
	Sodium	106	107	107	103		2.22
	Zinc	99.8	101	100	99.4		0.724
EPA 200.8 Rev. 5.4	Aluminum	98.6	97.4	97.1	99.1		1.99
	Antimony	99.6	99.7	98.5	99.4		0.928
	Arsenic	101	99.5	99.1	99.3		0.163
	Boron	100	99.3	98.8	102		3.18
	Cadmium	101	100	101	101		0.307
	Chromium	102	100	97.9	99.7		1.82
	Copper	99.7	98.7	96.0	97.2		1.30
	Lead	95.3	94.4	92.9	94.0		1.10
	Nickel	101	99.4	97.8	99.0		1.19
	Selenium	99.5	96.2	95.8	96.9		1.13
	Silver	99.7	98.5	99.8	99.4		0.412
	Thallium	102	101	100	102		2.34
EPA 300.0 Rev. 2.1	Chloride	95.4	95.6	98.1		0.104	
	Sulfate	98.1	95.9	97.1		0.0554	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	98.6	101			2.23
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	106			2.54
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	97.0	97.5	97.0			0.514
	NO ₂ NO ₃ -N	96.0	96.5	96.5			0.0
EPA 365.1 Rev. 2.0	Total-P	96.0	100	99.9			0.281
	Total-P	106	101	98.9			2.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	98.6	99.3			0.707
SM 2120 B	Color (true)	104				3.06	
SM 2320 B-97	Total Alkalinity	104				4.94	
SM 2540 C-97	TDS					6.42	
	TDS					1.68	
SM 2540 D-97	TSS					9.84	
SM 4500 F-C-97	Fluoride	97.4	96.1	96.6			0.482
SM 5310 B-00	Organic Carbon	98.2	91.8	91.0			0.749
	Organic Carbon	96.9	93.6	93.3			0.239

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2090965, 2090966, 2090967, 2090968, 2090969
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2090965, 2090966, 2090967, 2090968, 2090969
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2090938, 2090944, 2090945, 2090946, 2090947, 2090953

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2090938, 2090944, 2090945, 2090946, 2090947, 2090953
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2090938, 2090944, 2090945, 2090946, 2090947, 2090953
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2090938, 2090944, 2090945, 2090946, 2090947, 2090953
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2090939, 2090948, 2090949, 2090950, 2090951, 2090954
SM 2120 B / E31780	True Color measured at 450 nm	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2090938, 2090944, 2090945, 2090946, 2090947, 2090953

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	06/04/2019			06/04/2019 17:24	Julia Storbeck	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
EPA 200.7 Rev. 4.4	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 14:42	Betina Topolski	2090965
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 15:19	Betina Topolski	2090966
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 15:26	Betina Topolski	2090967
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 15:32	Betina Topolski	2090968
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 15:37	Betina Topolski	2090969
EPA 200.8 Rev. 5.4	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/17/2019 23:25	Robert K Palmer	2090965
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/17/2019 23:35	Robert K Palmer	2090966
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/17/2019 23:45	Robert K Palmer	2090967
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/17/2019 23:55	Robert K Palmer	2090968
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/18/2019 00:34	Robert K Palmer	2090969
EPA 300.0 Rev. 2.1	06/04/2019			06/06/2019 16:07	Lipi Saha	2090937
	06/04/2019			06/06/2019 16:19	Lipi Saha	2090940
	06/04/2019			06/06/2019 16:31	Lipi Saha	2090941
	06/04/2019			06/06/2019 16:43	Lipi Saha	2090942
	06/04/2019			06/06/2019 16:55	Lipi Saha	2090943
	06/04/2019			06/06/2019 17:08	Lipi Saha	2090952
EPA 350.1 Rev. 2.0	06/04/2019			06/05/2019 15:20	Ping Hua	2090944
	06/04/2019			06/05/2019 15:33	Ping Hua	2090938
	06/04/2019			06/05/2019 15:35	Ping Hua	2090945
	06/04/2019			06/05/2019 15:37	Ping Hua	2090946
	06/04/2019			06/05/2019 15:38	Ping Hua	2090947
	06/04/2019			06/05/2019 15:40	Ping Hua	2090953
EPA 351.2 Rev. 2.0	06/04/2019	06/07/2019 12:45	Adrian Shelby	06/10/2019 17:08	Virginia P. Brown	2090938
	06/04/2019	06/07/2019 12:45	Adrian Shelby	06/10/2019 17:09	Virginia P. Brown	2090944
	06/04/2019	06/07/2019 12:45	Adrian Shelby	06/10/2019 17:14	Virginia P. Brown	2090945
	06/04/2019	06/07/2019 12:45	Adrian Shelby	06/10/2019 17:15	Virginia P. Brown	2090946
	06/04/2019	06/07/2019 12:45	Adrian Shelby	06/10/2019 17:17	Virginia P. Brown	2090947
	06/04/2019	06/07/2019 12:45	Adrian Shelby	06/10/2019 17:18	Virginia P. Brown	2090953
EPA 353.2 Rev. 2.0	06/04/2019			06/06/2019 10:23	Beverly Y. Sanders	2090938
	06/04/2019			06/06/2019 10:25	Beverly Y. Sanders	2090944
	06/04/2019			06/06/2019 10:26	Beverly Y. Sanders	2090945
	06/04/2019			06/06/2019 10:27	Beverly Y. Sanders	2090946
	06/04/2019			06/06/2019 10:28	Beverly Y. Sanders	2090947
	06/04/2019			06/06/2019 10:35	Beverly Y. Sanders	2090953
EPA 365.1 Rev. 2.0	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:42	Lipi Saha	2090938
	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:43	Lipi Saha	2090944
	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:44	Lipi Saha	2090945
	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:46	Lipi Saha	2090946

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:47	Lipi Saha	2090947
	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:48	Lipi Saha	2090953
EPA 365.1 Rev. 2.0 dissolved	06/04/2019			06/04/2019 15:15	Jhamieka S. Greenwood	2090951
	06/04/2019			06/04/2019 15:32	Jhamieka S. Greenwood	2090939, 2090948
	06/04/2019			06/04/2019 15:33	Jhamieka S. Greenwood	2090949
	06/04/2019			06/04/2019 15:38	Jhamieka S. Greenwood	2090950
	06/04/2019			06/04/2019 15:39	Jhamieka S. Greenwood	2090954
SM 2120 B	06/04/2019			06/04/2019 17:35	Madeline Funaro	2090937
	06/04/2019			06/04/2019 17:37	Madeline Funaro	2090940
	06/04/2019			06/04/2019 17:38	Madeline Funaro	2090941, 2090942
	06/04/2019			06/04/2019 17:39	Madeline Funaro	2090943
	06/04/2019			06/04/2019 17:40	Madeline Funaro	2090952
SM 2320 B-97	06/04/2019			06/11/2019 09:29	Dale L. Simmons	2090937
	06/04/2019			06/11/2019 09:41	Dale L. Simmons	2090940
	06/04/2019			06/11/2019 09:54	Dale L. Simmons	2090941
	06/04/2019			06/11/2019 10:07	Dale L. Simmons	2090942
	06/04/2019			06/11/2019 10:20	Dale L. Simmons	2090943
SM 2540 C-97	06/04/2019			06/11/2019 10:32	Dale L. Simmons	2090952
	06/04/2019			06/06/2019 15:49	Yijie Li	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 2540 D-97	06/04/2019			06/06/2019 15:49	Yijie Li	2090937, 2090940, 2090941, 2090942, 2090943, 2090952
SM 4500 F-C-97	06/04/2019			06/11/2019 09:29	Dale L. Simmons	2090937
	06/04/2019			06/11/2019 09:41	Dale L. Simmons	2090940
	06/04/2019			06/11/2019 09:54	Dale L. Simmons	2090941
	06/04/2019			06/11/2019 10:07	Dale L. Simmons	2090942
	06/04/2019			06/11/2019 10:20	Dale L. Simmons	2090943
SM 5310 B-00	06/04/2019			06/11/2019 10:32	Dale L. Simmons	2090952
	06/04/2019			06/07/2019 02:56	Julia Storbeck	2090938
	06/04/2019			06/07/2019 03:11	Julia Storbeck	2090944
	06/04/2019			06/07/2019 03:27	Julia Storbeck	2090945
	06/04/2019			06/07/2019 03:40	Julia Storbeck	2090946
	06/04/2019			06/07/2019 04:24	Julia Storbeck	2090947
	06/04/2019			06/07/2019 05:46	Julia Storbeck	2090953