

Chemical Analysis Report

CEN-DIST-2018-04-04-01

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

Event Description: **Dead River X4 + D&B**
Request ID: **RQ-2018-04-02-50**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 07-MAY-2018 16:51



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 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: Dead River @ 100m from Lake Harris

Collection Date/Time: 04/03/2018 12:00

Field ID: G1CE0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980804	EPA 180.1 Rev. 2.0	Turbidity	2.1	A	NTU	P342787	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P342993	
		Sulfate	7.4		mg SO4/L	P342996	
	SM 2120 B	Color (true)	23		PCU	P342748	
	SM 2320 B-97	Total Alkalinity	96		mg CaCO3/L	P343412	
	SM 2540 C-97	TDS	182		mg/L	P343342	
	SM 2540 D-97	TSS	4	I	mg/L	P343454	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P343416	
1980808	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P343310	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P342895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P343045	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P343037	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P343253	
1980812	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342799	
1980858	EPA 200.7 Rev. 4.4	Calcium	35.8		mg/L	P342859	
		Iron	35	I	ug/L	P342859	
		Magnesium	7.49		mg/L	P342859	
		Potassium	3.7		mg/L	P342859	
		Sodium	12.5		mg/L	P342859	
	EPA 200.8 Rev. 5.4	Zinc	13	I	ug/L	P342859	
		Arsenic	1.29		ug/L	P342859	
		Cadmium	0.020	U	ug/L	P342859	
		Chromium	0.40	U	ug/L	P342859	
		Copper	0.21	I	ug/L	P342859	
		Lead	0.10	I	ug/L	P342859	
		Nickel	0.20	U	ug/L	P342859	
		Silver	0.010	U	ug/L	P342859	

Ref. Method and Comment:

SM 2320 B-97: Batch relative percent difference is unavailable because of analytical difficulties.

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

Sample Location: Dead River @ Power Lines

Collection Date/Time: 04/03/2018 12:15

Field ID: G1CE0056

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980805	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P342787	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P342993	
		Sulfate	7.5		mg SO4/L	P342996	
	SM 2120 B	Color (true)	24		PCU	P342748	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P343412	
	SM 2540 C-97	TDS	200		mg/L	P343342	
	SM 2540 D-97	TSS	4	I	mg/L	P343454	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P343416	
1980809	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P343310	

Field ID: G1CE0056

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980809	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342900	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P343045	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P343037	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P343253	
1980813	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342799	
1980859	EPA 200.7 Rev. 4.4	Calcium	36.7		mg/L	P342859	
		Iron	33	I	ug/L	P342859	
		Magnesium	7.65		mg/L	P342859	
		Potassium	3.9		mg/L	P342859	
		Sodium	12.8		mg/L	P342859	
		Zinc	5.0	U	ug/L	P342859	
	EPA 200.8 Rev. 5.4	Arsenic	1.34		ug/L	P342859	
		Cadmium	0.020	U	ug/L	P342859	
		Chromium	0.40	U	ug/L	P342859	
		Copper	0.36	I	ug/L	P342859	
		Lead	0.12	I	ug/L	P342859	
		Nickel	0.20	U	ug/L	P342859	
		Silver	0.010	U	ug/L	P342859	

Ref. Method and Comment:

SM 2320 B-97: Batch relative percent difference is unavailable because of analytical difficulties.

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

Sample Location: Dead River @ 50m S of US441

Collection Date/Time: 04/03/2018 12:30

Field ID: G1CE0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980806	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P342787	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P342993	
		Sulfate	8.5		mg SO4/L	P342996	
	SM 2120 B	Color (true)	23	A	PCU	P342748	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P343412	
	SM 2540 C-97	TDS	189		mg/L	P343342	
	SM 2540 D-97	TSS	6	I	mg/L	P343454	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P343416	
1980810	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P343310	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342900	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P343045	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P343037	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P343253	
1980814	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342799	
1980860	EPA 200.7 Rev. 4.4	Calcium	36.8		mg/L	P342859	
		Iron	30	I	ug/L	P342859	
		Magnesium	7.89		mg/L	P342859	
		Potassium	4.1		mg/L	P342859	
		Sodium	13.1		mg/L	P342859	

Field ID: G1CE0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980860	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P342859	
	EPA 200.8 Rev. 5.4	Arsenic	1.39		ug/L	P342859	
		Cadmium	0.020	U	ug/L	P342859	
		Chromium	0.40	U	ug/L	P342859	
		Copper	0.20	U	ug/L	P342859	
		Lead	0.12	I	ug/L	P342859	
		Nickel	0.20	U	ug/L	P342859	
		Silver	0.010	U	ug/L	P342859	

Ref. Method and Comment:

SM 2320 B-97: Batch relative percent difference is unavailable because of analytical difficulties.

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

Sample Location: Dead River @ 150m from Lake Eustis

Collection Date/Time: 04/03/2018 12:40

Field ID: G1CE0101

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980807	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P342787	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P342993	
		Sulfate	9.3		mg SO4/L	P342996	
	SM 2120 B	Color (true)	22		PCU	P342748	
	SM 2320 B-97	Total Alkalinity	98		mg CaCO3/L	P343412	
	SM 2540 C-97	TDS	209		mg/L	P343342	
	SM 2540 D-97	TSS	7	I	mg/L	P343454	
1980811	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P343416	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P343312	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342900	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P343045	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P343037	
1980815	SM 5310 B-00	Organic Carbon	15		mg C/L	P343253	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342799	
	EPA 200.7 Rev. 4.4	Calcium	36.8		mg/L	P342859	
1980861		Iron	32	I	ug/L	P342859	
		Magnesium	8.24		mg/L	P342859	
		Potassium	4.4		mg/L	P342859	
		Sodium	13.4		mg/L	P342859	
		Zinc	5.0	U	ug/L	P342859	
	EPA 200.8 Rev. 5.4	Arsenic	1.42		ug/L	P342859	
		Cadmium	0.020	U	ug/L	P342859	
		Chromium	0.40	U	ug/L	P342859	
		Copper	0.20	U	ug/L	P342859	
		Lead	0.14	I	ug/L	P342859	
		Nickel	0.20	U	ug/L	P342859	
		Silver	0.010	U	ug/L	P342859	

Ref. Method and Comment:

SM 2320 B-97: Batch relative percent difference is unavailable because of analytical difficulties.

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

Sample Location: Dead River @ Power Lines

Collection Date/Time: 04/03/2018 12:19

Field ID: G1CE0056_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980816	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P342787	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P342993	
		Sulfate	7.4		mg SO4/L	P342996	
	SM 2120 B	Color (true)	24		PCU	P342748	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P343412	
	SM 2540 C-97	TDS	191		mg/L	P343342	
	SM 2540 D-97	TSS	4	I	mg/L	P343454	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P343416	
1980818	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P343310	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342900	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P343045	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P343037	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P343253	
1980820	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342799	
1980862	EPA 200.7 Rev. 4.4	Calcium	37.3		mg/L	P342859	
		Iron	35	I	ug/L	P342859	
		Magnesium	7.80		mg/L	P342859	
		Potassium	3.9		mg/L	P342859	
		Sodium	13.0		mg/L	P342859	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P342859	
		Arsenic	1.32		ug/L	P342859	
		Cadmium	0.020	U	ug/L	P342859	
		Chromium	0.40	U	ug/L	P342859	
		Copper	0.20	U	ug/L	P342859	
		Lead	0.11	I	ug/L	P342859	
		Nickel	0.20	U	ug/L	P342859	
		Silver	0.010	U	ug/L	P342859	

Ref. Method and Comment:

SM 2320 B-97: Batch relative percent difference is unavailable because of analytical difficulties.

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

Sample Location: Field Blank

Collection Date/Time: 04/03/2018 13:03

Field ID: BLANK_04032018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980817	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P342787	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P342994	
		Sulfate	0.20	U	mg SO4/L	P342997	
	SM 2120 B	Color (true)	2.5	U	PCU	P342748	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P343412	
	SM 2540 C-97	TDS	15	U	mg/L	P343339	
	SM 2540 D-97	TSS	2	U	mg/L	P343451	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P343416	
1980819	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P343312	

Field ID: BLANK_04032018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980819	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P342900	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343045	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P343037	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P343253	
1980821	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342799	
1980863	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P342859	
		Iron	30	U	ug/L	P342859	
		Magnesium	0.040	U	mg/L	P342859	
		Potassium	0.30	U	mg/L	P342859	
		Sodium	0.50	U	mg/L	P342859	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P342859	
		Arsenic	0.050	U	ug/L	P342859	
		Cadmium	0.020	U	ug/L	P342859	
		Chromium	0.40	U	ug/L	P342859	
		Copper	0.60	I	ug/L	P342859	
		Lead	0.050	U	ug/L	P342859	
		Nickel	0.20	U	ug/L	P342859	
		Silver	0.010	U	ug/L	P342859	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2320 B-97: Batch relative percent difference is unavailable because of analytical difficulties.

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

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 04/10/2018.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P342787

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P342859

Component	Result	Code	Units
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: P342859

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342859

Component	Result	Code	Units
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342993

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342994

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342996

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342997

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343310

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343312

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342895

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342900

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342900

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343045

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343037

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342799

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

Reference Method: SM 2120 B
Batch ID: P342748

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343412

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P343339

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P343342

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343451

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P343454

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343416

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343253

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: P342859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	92.6		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	89.0		P	85 - 115
Sodium	98.6		P	85 - 115
Zinc	89.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	106		P	85 - 115
Chromium	105		P	85 - 115
Copper	99.5		P	85 - 115
Lead	102		P	85 - 115
Nickel	98.7		P	85 - 115
Silver	98.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342993

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342994

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342996

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342997

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343310

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343312

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342895

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343045

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343037

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P343412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P343416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P343253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P342859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980644	Calcium	100		P	80 - 120
1980644	Iron	105		P	80 - 120
1980644	Magnesium	102		P	80 - 120
1980644	Potassium	101		P	80 - 120
1980644	Sodium	98.3		P	80 - 120
1980644	Zinc	100		P	80 - 120
1980859	Calcium	103		P	80 - 120
1980859	Iron	108	110	P/P	80 - 120
1980859	Magnesium	107		P	80 - 120
1980859	Potassium	97.1	100	P/P	80 - 120
1980859	Sodium	102		P	80 - 120
1980859	Zinc	101	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P342859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980644	Arsenic	99.8		P	80 - 120
1980644	Cadmium	105		P	80 - 120
1980644	Chromium	99.3		P	80 - 120
1980644	Copper	96.8		P	80 - 120
1980644	Lead	99.8		P	80 - 120
1980644	Nickel	94.9		P	80 - 120
1980644	Silver	94.8		P	80 - 120
1980859	Arsenic	102	100	P/P	80 - 120
1980859	Cadmium	106	108	P/P	80 - 120
1980859	Chromium	103	102	P/P	80 - 120
1980859	Copper	99.3	98.8	P/P	80 - 120
1980859	Lead	103	102	P/P	80 - 120
1980859	Nickel	99.2	98.0	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980859	Silver	98.6	97.6	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980667	Chloride	99.8		P	90 - 110
1980781	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980920	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980667	Sulfate	98.6		P	90 - 110
1980781	Sulfate	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980823	Sulfate	99.0		P	90 - 110
1980920	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980740	Ammonia-N	98.7	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980824	Ammonia-N	96.7	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980746	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980818	Kjeldahl Nitrogen	101	97.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980747	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980784	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980750	O-Phosphate-P	96.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P343416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980876	Fluoride	96.6	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980748	Organic Carbon	98.0	98.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980804	Turbidity	0.957	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P342859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980859	Calcium	0.334	Spike	P	0 - 20
1980859	Iron	1.94	Spike	P	0 - 20
1980859	Magnesium	1.76	Spike	P	0 - 20
1980859	Potassium	1.61	Spike	P	0 - 20
1980859	Sodium	0.681	Spike	P	0 - 20
1980859	Zinc	1.24	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980859	Arsenic	1.63	Spike	P	0 - 20
1980859	Cadmium	0.984	Spike	P	0 - 20
1980859	Chromium	0.720	Spike	P	0 - 20
1980859	Copper	0.502	Spike	P	0 - 20
1980859	Lead	0.712	Spike	P	0 - 20
1980859	Nickel	1.19	Spike	P	0 - 20
1980859	Silver	1.00	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980667	Chloride	0.0304	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980823	Chloride	0.236	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980667	Sulfate	0.282	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980823	Sulfate	0.441	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980740	Ammonia-N	1.29	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980824	Ammonia-N	2.76	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980746	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980818	Kjeldahl Nitrogen	2.05	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980747	NO2NO3-N	0.370	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980784	Total-P	0.345	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980750	O-Phosphate-P	3.49	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980806	Color (true)	4.73	Sample	P	0 - 20

Reference Method: SM 2540 C-97
Batch ID: P343339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979967	TDS	1.10	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P343342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980782	TDS	8.52	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P343416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980876	Fluoride	1.02	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980748	Organic Carbon	0.264	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 300.0 Rev. 2.1
Run ID: A83001
Included Lab Sample IDs: 1980804, 1980805, 1980806, 1980807, 1980816, 1980817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110
Sulfate	99.9	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A83034
Included Lab Sample IDs: 1980804, 1980805, 1980806, 1980807, 1980816, 1980817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.6	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83045
Included Lab Sample IDs: 1980804, 1980805, 1980806, 1980807, 1980816, 1980817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105
Turbidity	99.0	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83051
Included Lab Sample IDs: 1980812, 1980813, 1980814, 1980815, 1980820, 1980821

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	99.9	P/P	90 - 110
O-Phosphate-P	99.9	99.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83119

Included Lab Sample IDs: 1980808

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A83121

Included Lab Sample IDs: 1980858, 1980859, 1980860, 1980861, 1980862, 1980863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	104	P/P	90 - 110
Calcium	98.6	99.2	P/P	95 - 105
Iron	101	102	P/P	95 - 105
Iron	105	108	P/P	90 - 110
Magnesium	102	102	P/P	95 - 105
Magnesium	105	107	P/P	90 - 110
Potassium	103	106	P/P	90 - 110
Potassium	98.9	99.4	P/P	95 - 105
Sodium	97.1	96.9	P/P	95 - 105
Sodium	99.4	105	P/P	90 - 110
Zinc	102	104	P/P	90 - 110
Zinc	103	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83122

Included Lab Sample IDs: 1980808, 1980809, 1980810, 1980811, 1980818, 1980819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83128

Included Lab Sample IDs: 1980809, 1980810, 1980811, 1980818, 1980819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.9	98.6	P/P	90 - 110
Kjeldahl Nitrogen	98.6	96.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83151

Included Lab Sample IDs: 1980858, 1980859, 1980860, 1980861, 1980862, 1980863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.9	98.4	P/P	90 - 110
Arsenic	97.8	96.7	P/P	90 - 110
Arsenic	98.4	97.8	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	98.8	99.4	P/P	90 - 110
Cadmium	99.4	101	P/P	90 - 110
Chromium	96.7	97.2	P/P	90 - 110
Chromium	97.2	98.6	P/P	90 - 110
Chromium	98.6	98.9	P/P	90 - 110
Copper	95.5	95.4	P/P	90 - 110
Copper	96.1	97.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83151

Included Lab Sample IDs: 1980858, 1980859, 1980860, 1980861, 1980862, 1980863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	97.3	95.5	P/P	90 - 110
Lead	96.6	97.8	P/P	90 - 110
Lead	97.8	98.1	P/P	90 - 110
Lead	98.1	98.2	P/P	90 - 110
Nickel	96.0	97.2	P/P	90 - 110
Nickel	96.1	95.1	P/P	90 - 110
Nickel	97.2	96.1	P/P	90 - 110
Silver	100	101	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Silver	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83157

Included Lab Sample IDs: 1980808, 1980809, 1980810, 1980811, 1980818, 1980819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	102	P/P	90 - 110
Total-P	99.5	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83183

Included Lab Sample IDs: 1980808, 1980809, 1980810, 1980811, 1980818, 1980819

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83204

Included Lab Sample IDs: 1980808, 1980809, 1980810, 1980811, 1980818, 1980819

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

Reference Method: SM 2320 B-97

Run ID: A83241

Included Lab Sample IDs: 1980804, 1980805, 1980806, 1980807, 1980816, 1980817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83241

Included Lab Sample IDs: 1980804, 1980805, 1980806, 1980807, 1980816, 1980817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	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	
						LCS	MS
EPA 180.1 Rev. 2.0	Turbidity					0.957	
EPA 200.7 Rev. 4.4	Calcium	101	100	103			0.334
	Iron	92.6	105	108	110		1.94
	Magnesium	103	102	107			1.76
	Potassium	89.0	101	97.1	100		1.61
	Sodium	98.6	98.3	102			0.681
	Zinc	89.7	100	101	102		1.24
EPA 200.8 Rev. 5.4	Arsenic	100	99.8	102	100		1.63
	Cadmium	106	105	106	108		0.984
	Chromium	105	99.3	103	102		0.720
	Copper	99.5	96.8	99.3	98.8		0.502
	Lead	102	99.8	103	102		0.712
	Nickel	98.7	94.9	99.2	98.0		1.19
	Silver	98.9	94.8	98.6	97.6		1.00
EPA 300.0 Rev. 2.1	Chloride	100	99.8	97.9		0.0304	
	Chloride	99.5	100			0.236	
	Sulfate	100	98.6	98.9		0.282	
	Sulfate	98.6	99.0	101		0.441	
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	98.7	101			1.29
	Ammonia-N	100	96.7	99.8			2.76
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103	101			1.05
	Kjeldahl Nitrogen	94.8	101	97.3			2.05
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	105	104			0.370
EPA 365.1 Rev. 2.0	Total-P	102	102	101			0.345
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	96.3	101			3.49
SM 2120 B	Color (true)					4.73	
SM 2320 B-97	Total Alkalinity	101				1.10	
SM 2540 C-97	TDS					8.52	
SM 4500 F-C-97	Fluoride	96.9	96.6	97.9			1.02
SM 5310 B-00	Organic Carbon	98.6	98.0	98.4			0.264

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1980858, 1980859, 1980860, 1980861, 1980862, 1980863
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1980858, 1980859, 1980860, 1980861, 1980862, 1980863
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1980808, 1980809, 1980810, 1980811, 1980818, 1980819
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1980808, 1980809, 1980810, 1980811, 1980818, 1980819
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1980808, 1980809, 1980810, 1980811, 1980818, 1980819
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1980808, 1980809, 1980810, 1980811, 1980818, 1980819
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1980812, 1980813, 1980814, 1980815, 1980820, 1980821

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2120 B / E31780	True Color measured at 450 nm	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1980808, 1980809, 1980810, 1980811, 1980818, 1980819

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	04/04/2018			04/04/2018 17:53	William L. Brown IV	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
EPA 200.7 Rev. 4.4	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/09/2018 11:00	Betina Topolski	1980863
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/09/2018 13:37	Betina Topolski	1980858
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/09/2018 13:43	Betina Topolski	1980859
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/09/2018 14:09	Betina Topolski	1980860
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/09/2018 14:16	Betina Topolski	1980861
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/09/2018 14:24	Betina Topolski	1980862
EPA 200.8 Rev. 5.4	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/10/2018 17:29	Nadine Brooks	1980863
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/10/2018 19:15	Nadine Brooks	1980859
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/10/2018 21:39	Nadine Brooks	1980858
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/10/2018 21:49	Nadine Brooks	1980860
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/10/2018 21:59	Nadine Brooks	1980861
	04/04/2018	04/05/2018 18:30	Elliott D. Healy	04/10/2018 22:08	Nadine Brooks	1980862
EPA 300.0 Rev. 2.1	04/04/2018			04/06/2018 00:15	Lipi Saha	1980804
	04/04/2018			04/06/2018 00:27	Lipi Saha	1980805
	04/04/2018			04/06/2018 01:02	Lipi Saha	1980806
	04/04/2018			04/06/2018 01:14	Lipi Saha	1980807
	04/04/2018			04/06/2018 01:26	Lipi Saha	1980816
	04/04/2018			04/06/2018 03:38	Lipi Saha	1980817
EPA 350.1 Rev. 2.0	04/04/2018			04/12/2018 11:46	Ping Hua	1980808
	04/04/2018			04/12/2018 11:47	Ping Hua	1980809
	04/04/2018			04/12/2018 11:49	Ping Hua	1980818
	04/04/2018			04/12/2018 11:50	Ping Hua	1980810
	04/04/2018			04/12/2018 12:28	Ping Hua	1980811
	04/04/2018			04/12/2018 12:33	Ping Hua	1980819
EPA 351.2 Rev. 2.0	04/04/2018	04/06/2018 10:50	Adrian Shelby	04/09/2018 13:27	Joseph Suarez	1980809
	04/04/2018	04/06/2018 10:50	Adrian Shelby	04/09/2018 13:29	Joseph Suarez	1980810
	04/04/2018	04/06/2018 10:50	Adrian Shelby	04/09/2018 13:30	Joseph Suarez	1980811
	04/04/2018	04/06/2018 10:50	Adrian Shelby	04/09/2018 13:32	Joseph Suarez	1980818
	04/04/2018	04/06/2018 10:50	Adrian Shelby	04/09/2018 13:39	Joseph Suarez	1980819
	04/04/2018	04/06/2018 13:30	Adrian Shelby	04/09/2018 12:29	Joseph Suarez	1980808
EPA 353.2 Rev. 2.0	04/04/2018			04/09/2018 12:21	Lauren Bottorf	1980819
	04/04/2018			04/09/2018 12:22	Lauren Bottorf	1980809
	04/04/2018			04/09/2018 12:23	Lauren Bottorf	1980818
	04/04/2018			04/09/2018 12:28	Lauren Bottorf	1980808
	04/04/2018			04/09/2018 12:29	Lauren Bottorf	1980810
	04/04/2018			04/09/2018 12:31	Lauren Bottorf	1980811
EPA 365.1 Rev. 2.0	04/04/2018	04/09/2018 13:30	Sima Feizi	04/11/2018 09:28	Beverly Y. Sanders	1980808
	04/04/2018	04/09/2018 13:30	Sima Feizi	04/11/2018 09:29	Beverly Y. Sanders	1980809

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	04/04/2018	04/09/2018 13:30	Sima Feizi	04/11/2018 09:30	Beverly Y. Sanders	1980810
	04/04/2018	04/09/2018 13:30	Sima Feizi	04/11/2018 09:31	Beverly Y. Sanders	1980811
	04/04/2018	04/09/2018 13:30	Sima Feizi	04/11/2018 09:32	Beverly Y. Sanders	1980818
	04/04/2018	04/09/2018 13:30	Sima Feizi	04/11/2018 09:39	Beverly Y. Sanders	1980819
EPA 365.1 Rev. 2.0 dissolved	04/04/2018			04/04/2018 16:24	Megan Treadwell	1980812
	04/04/2018			04/04/2018 16:25	Megan Treadwell	1980813
	04/04/2018			04/04/2018 16:26	Megan Treadwell	1980814
	04/04/2018			04/04/2018 16:34	Megan Treadwell	1980815
	04/04/2018			04/04/2018 16:35	Megan Treadwell	1980820, 1980821
SM 2120 B	04/04/2018			04/04/2018 15:53	Tanya Welborn	1980804
	04/04/2018			04/04/2018 15:54	Tanya Welborn	1980805
	04/04/2018			04/04/2018 15:55	Tanya Welborn	1980806
	04/04/2018			04/04/2018 15:56	Tanya Welborn	1980807
SM 2320 B-97	04/04/2018			04/04/2018 15:57	Tanya Welborn	1980816, 1980817
	04/04/2018			04/14/2018 03:52	Dale L. Simmons	1980804
	04/04/2018			04/14/2018 04:03	Dale L. Simmons	1980805
	04/04/2018			04/14/2018 04:13	Dale L. Simmons	1980806
	04/04/2018			04/14/2018 04:23	Dale L. Simmons	1980807
	04/04/2018			04/14/2018 04:33	Dale L. Simmons	1980816
SM 2540 C-97	04/04/2018			04/14/2018 04:43	Dale L. Simmons	1980817
	04/04/2018			04/06/2018 16:01	Yijie Li	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 2540 D-97	04/04/2018			04/06/2018 16:01	Yijie Li	1980804, 1980805, 1980806, 1980807, 1980816, 1980817
SM 4500 F-C-97	04/04/2018			04/14/2018 03:52	Dale L. Simmons	1980804
	04/04/2018			04/14/2018 04:03	Dale L. Simmons	1980805
	04/04/2018			04/14/2018 04:13	Dale L. Simmons	1980806
	04/04/2018			04/14/2018 04:23	Dale L. Simmons	1980807
	04/04/2018			04/14/2018 04:33	Dale L. Simmons	1980816
	04/04/2018			04/14/2018 04:43	Dale L. Simmons	1980817
SM 5310 B-00	04/04/2018			04/11/2018 23:08	Megan Treadwell	1980808
	04/04/2018			04/11/2018 23:20	Megan Treadwell	1980809
	04/04/2018			04/11/2018 23:32	Megan Treadwell	1980810
	04/04/2018			04/11/2018 23:44	Megan Treadwell	1980811
	04/04/2018			04/11/2018 23:59	Megan Treadwell	1980818
	04/04/2018			04/12/2018 00:11	Megan Treadwell	1980819