Chemical Analysis Report

CEN-DIST-2018-04-06-02

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

Event Description: **Tilden X4 / Starke + D&B**
Request ID: **RQ-2018-04-02-54**
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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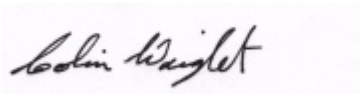
Certified by: Colin Wright, Program Administrator

Date Certified: 09-MAY-2018 15:56



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: Lake Tilden @ 140m NW of Center (2875B) **Collection Date/Time: 04/05/2018 10:00**

Field ID: G1CE0087 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982032	EPA 180.1 Rev. 2.0	Turbidity	4.3	A	NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	35	A	mg Cl/L	P343154	
		Sulfate	12	A	mg SO4/L	P343156	
	SM 2120 B	Color (true)	310		PCU	P342931	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	149		mg/L	P343221	
	SM 2540 D-97	TSS	3	I	mg/L	P343543	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P343509	
1982036	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P343552	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P343474	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P343283	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P343324	
1982040	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P342944	
1982074	EPA 200.7 Rev. 4.4	Calcium	14.8		mg/L	P343190	
		Iron	230		ug/L	P343190	
		Magnesium	5.48		mg/L	P343190	
		Potassium	7.7		mg/L	P343190	
		Sodium	21.6		mg/L	P343190	
		Zinc	5.0	U	ug/L	P343190	
	EPA 200.8 Rev. 5.4	Arsenic	1.11		ug/L	P343190	
		Cadmium	0.020	U	ug/L	P343190	
		Chromium	0.53	I	ug/L	P343190	
		Copper	1.53		ug/L	P343190	
		Lead	0.32		ug/L	P343190	
		Nickel	0.56	I	ug/L	P343190	
		Silver	0.010	U	ug/L	P343190	

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 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Tilden @ 165m NE of Center (2875B) **Collection Date/Time: 04/05/2018 10:10**

Field ID: G1CE0088 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982033	EPA 180.1 Rev. 2.0	Turbidity	6.5		NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P343154	
		Sulfate	12		mg SO4/L	P343156	
	SM 2120 B	Color (true)	300		PCU	P342931	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	157		mg/L	P343221	
	SM 2540 D-97	TSS	8	I	mg/L	P343543	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P343509	

Field ID: G1CE0088 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982037	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P343552	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343474	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P343283	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P343396	
1982041	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P342944	
1982075	EPA 200.7 Rev. 4.4	Calcium	14.7		mg/L	P343190	
		Iron	220		ug/L	P343190	
		Magnesium	5.46		mg/L	P343190	
		Potassium	7.6		mg/L	P343190	
		Sodium	21.6		mg/L	P343190	
		Zinc	5.0	U	ug/L	P343190	
	EPA 200.8 Rev. 5.4	Arsenic	1.12		ug/L	P343190	
		Cadmium	0.020	U	ug/L	P343190	
		Chromium	0.55	I	ug/L	P343190	
		Copper	1.44		ug/L	P343190	
		Lead	0.29		ug/L	P343190	
		Nickel	0.47	I	ug/L	P343190	
		Silver	0.010	U	ug/L	P343190	

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 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Tilden @ 150m SE of Center (2875B) **Collection Date/Time: 04/05/2018 10:18**

Field ID: G1CE0089 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982034	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P343154	
		Sulfate	12		mg SO4/L	P343156	
	SM 2120 B	Color (true)	310		PCU	P342931	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	142		mg/L	P343221	
	SM 2540 D-97	TSS	2	I	mg/L	P343543	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P343509	
1982038	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P343552	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343474	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P343283	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P343396	
1982042	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P342944	
1982076	EPA 200.7 Rev. 4.4	Calcium	14.5		mg/L	P343190	
		Iron	210		ug/L	P343190	
		Magnesium	5.31		mg/L	P343190	

Field ID: G1CE0089 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982076	EPA 200.7 Rev. 4.4	Potassium	7.5		mg/L	P343190	
		Sodium	21.3		mg/L	P343190	
		Zinc	5.0	U	ug/L	P343190	
	EPA 200.8 Rev. 5.4	Arsenic	1.09		ug/L	P343190	
		Cadmium	0.020	U	ug/L	P343190	
		Chromium	0.52	I	ug/L	P343190	
		Copper	1.47		ug/L	P343190	
		Lead	0.29		ug/L	P343190	
		Nickel	0.57	I	ug/L	P343190	
		Silver	0.010	U	ug/L	P343190	

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 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Tilden @ 225m S of Center (2875B) **Collection Date/Time: 04/05/2018 10:25**

Field ID: G1CE0090 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982035	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P343154	
		Sulfate	12		mg SO4/L	P343156	
	SM 2120 B	Color (true)	300		PCU	P342931	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	160		mg/L	P343221	
	SM 2540 D-97	TSS	3	I	mg/L	P343543	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P343509	
1982039	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P343552	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343475	
	EPA 365.1 Rev. 2.0	Total-P	0.091		mg P/L	P343283	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P343396	
1982043	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P342944	
1982077	EPA 200.7 Rev. 4.4	Calcium	14.6		mg/L	P343190	
		Iron	220		ug/L	P343190	
		Magnesium	5.41		mg/L	P343190	
		Potassium	7.5		mg/L	P343190	
		Sodium	21.3		mg/L	P343190	
		Zinc	5.0	U	ug/L	P343190	
	EPA 200.8 Rev. 5.4	Arsenic	1.09		ug/L	P343190	
		Cadmium	0.020	U	ug/L	P343190	
		Chromium	0.53	I	ug/L	P343190	
		Copper	1.44		ug/L	P343190	
		Lead	0.29		ug/L	P343190	
		Nickel	0.43	I	ug/L	P343190	

Field ID: G1CE0090 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982077	EPA 200.8 Rev. 5.4	Silver	0.010	U	ug/L	P343190	

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 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Starke @ Center (3002D) **Collection Date/Time: 04/05/2018 11:15**

Field ID: G2CE0094 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982044	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P343154	
		Sulfate	22		mg SO4/L	P343156	
	SM 2120 B	Color (true)	21		PCU	P342931	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	154		mg/L	P343222	
	SM 2540 D-97	TSS	7	I	mg/L	P343544	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P343509	
1982045	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P343553	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343475	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P343283	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P343396	
1982046	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342945	

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 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Starke @ Center (3002D) **Collection Date/Time: 04/05/2018 11:20**

Field ID: G2CE0094_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982047	EPA 180.1 Rev. 2.0	Turbidity	9.6		NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P343154	
		Sulfate	22		mg SO4/L	P343156	
	SM 2120 B	Color (true)	21		PCU	P342931	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	150	A	mg/L	P343222	
	SM 2540 D-97	TSS	7	IA	mg/L	P343544	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P343509	
1982048	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P343553	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343475	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P343284	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P343396	

Field ID: G2CE0094_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982049	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342944	

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 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank Location/DI source Washroom **Collection Date/Time: 04/05/2018 11:30**

Field ID: BLANK_04052018 Matrix: DI-WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982050	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P342954	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P343318	
		Sulfate	0.20	U	mg SO4/L	P343156	
	SM 2120 B	Color (true)	2.5	U	PCU	P342931	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P343505	RPD
	SM 2540 C-97	TDS	15	U	mg/L	P343219	
	SM 2540 D-97	TSS	2	U	mg/L	P343541	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P343509	
1982051	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P343553	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P343172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343475	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P343284	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P343396	
1982052	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342945	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342954

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343190

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343190

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
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: P343154

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343156

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343552

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343553

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343172

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343474

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343475

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343283

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343284

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342944

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342945

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

Reference Method: SM 2120 B
Batch ID: P342931

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343505

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

Reference Method: SM 2540 C-97
Batch ID: P343219

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P343221

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P343222

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343541

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343543

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343544

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343324

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

Reference Method: SM 5310 B-00
Batch ID: P343396

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: P343190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	108		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	104		P	85 - 115
Sodium	104		P	85 - 115
Zinc	101		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	104		P	85 - 115
Copper	101		P	85 - 115
Lead	102		P	85 - 115
Nickel	99.8		P	85 - 115
Silver	111		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343156

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343553

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343474

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343283

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343284

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342944

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342945

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

Reference Method: SM 2320 B-97
Batch ID: P343505

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

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343324

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

Reference Method: SM 5310 B-00
Batch ID: P343396

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981895	Calcium	106		P	80 - 120
1981895	Iron	107		P	80 - 120
1981895	Magnesium	103		P	80 - 120
1981895	Potassium	102		P	80 - 120
1981895	Sodium	107		P	80 - 120
1981895	Zinc	101		P	80 - 120
1982055	Calcium	102		P	80 - 120
1982055	Iron	106	106	P/P	80 - 120
1982055	Magnesium	100		P	80 - 120
1982055	Potassium	101	102	P/P	80 - 120
1982055	Sodium	102		P	80 - 120
1982055	Zinc	101	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981895	Arsenic	104		P	80 - 120
1981895	Cadmium	104		P	80 - 120
1981895	Chromium	100		P	80 - 120
1981895	Copper	101		P	80 - 120
1981895	Lead	102		P	80 - 120
1981895	Nickel	98.7		P	80 - 120
1981895	Silver	109		P	80 - 120
1982055	Arsenic	97.4	102	P/P	80 - 120
1982055	Cadmium	102	106	P/P	80 - 120
1982055	Chromium	94.3	100	P/P	80 - 120
1982055	Copper	93.2	99.5	P/P	80 - 120
1982055	Lead	96.9	102	P/P	80 - 120
1982055	Nickel	91.9	97.5	P/P	80 - 120
1982055	Silver	106	109	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982115	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982032	Sulfate	99.9		P	90 - 110
1982115	Sulfate	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983425	Chloride	101	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982017	Ammonia-N	92.2	93.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982045	Ammonia-N	94.5	92.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982017	NO2NO3-N	100	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982039	NO2NO3-N	97.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982017	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982963	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981971	O-Phosphate-P	97.6	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982046	O-Phosphate-P	90.4	91.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981919	Fluoride	102	101	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P343324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982017	Organic Carbon	98.7	99.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P343396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982037	Organic Carbon	101		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982032	Turbidity	6.96	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982055	Calcium	0.282	Spike	P	0 - 20
1982055	Iron	0.546	Spike	P	0 - 20
1982055	Magnesium	0.480	Spike	P	0 - 20
1982055	Potassium	0.501	Spike	P	0 - 20
1982055	Sodium	0.473	Spike	P	0 - 20
1982055	Zinc	0.959	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982055	Arsenic	4.35	Spike	P	0 - 20
1982055	Cadmium	4.43	Spike	P	0 - 20
1982055	Chromium	6.31	Spike	P	0 - 20
1982055	Copper	6.40	Spike	P	0 - 20
1982055	Lead	5.08	Spike	P	0 - 20
1982055	Nickel	5.76	Spike	P	0 - 20
1982055	Silver	2.58	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982032	Chloride	0.906	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982032	Sulfate	0.894	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983425	Chloride	0.355	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982017	Ammonia-N	1.63	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982045	Ammonia-N	1.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982048	Kjeldahl Nitrogen	4.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982017	NO2NO3-N	2.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982039	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982017	Total-P	0.998	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982963	Total-P	0.931	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981971	O-Phosphate-P	0.918	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982046	O-Phosphate-P	0.771	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982016	Color (true)	0.367	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P343505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981919	Total Alkalinity	1.62	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981856	TDS	3.16	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P343221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981965	TDS	3.98	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P343222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982047	TDS	7.31	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P343509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981919	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982017	Organic Carbon	0.367	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P343396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982037	Organic Carbon	0.830	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: SM 2120 B
Run ID: A83083
Included Lab Sample IDs: 1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	100	P/P	90 - 115
Color (true)	99.1	98.9	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83086
Included Lab Sample IDs: 1982040, 1982041, 1982042, 1982043, 1982046, 1982049, 1982052

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83088
Included Lab Sample IDs: 1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83148
Included Lab Sample IDs: 1982032, 1982033, 1982034, 1982035, 1982044, 1982047

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83202
Included Lab Sample IDs: 1982074, 1982075, 1982076, 1982077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	105	102	P/P	90 - 110
Iron	105	101	P/P	90 - 110
Magnesium	105	102	P/P	90 - 110
Potassium	104	101	P/P	90 - 110
Sodium	108	105	P/P	90 - 110
Zinc	103	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83208
Included Lab Sample IDs: 1982036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83219
Included Lab Sample IDs: 1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83234
Included Lab Sample IDs: 1982050

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

Reference Method: SM 5310 B-00
Run ID: A83237
Included Lab Sample IDs: 1982037, 1982038, 1982039, 1982045, 1982048, 1982051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	95.0	P/P	90 - 110
Organic Carbon	95.0	96.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83258
Included Lab Sample IDs: 1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83258
Included Lab Sample IDs: 1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83264
Included Lab Sample IDs: 1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83264
Included Lab Sample IDs: 1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83285
Included Lab Sample IDs: 1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A83294
Included Lab Sample IDs: 1982074, 1982075, 1982076, 1982077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.5	97.9	P/P	90 - 110
Cadmium	101	99.6	P/P	90 - 110
Chromium	98.9	98.0	P/P	90 - 110
Copper	99.2	97.4	P/P	90 - 110
Lead	98.0	97.5	P/P	90 - 110
Nickel	98.2	96.3	P/P	90 - 110
Silver	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83316
Included Lab Sample IDs: 1982045, 1982048, 1982051

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83331
Included Lab Sample IDs: 1982036, 1982037, 1982038, 1982039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83331
Included Lab Sample IDs: 1982036, 1982037, 1982038, 1982039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	P/P	90 - 110
Total-P	102	103	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						6.96	
EPA 200.7 Rev. 4.4	Calcium	105	106	102				0.282
	Iron	108	107	106	106			0.546
	Magnesium	105	103	100				0.480
	Potassium	104	102	101	102			0.501
	Sodium	104	107	102				0.473
	Zinc	101	101	101	100			0.959
EPA 200.8 Rev. 5.4	Arsenic	102	104	97.4	102			4.35
	Cadmium	105	104	102	106			4.43
	Chromium	104	100	94.3	100			6.31
	Copper	101	101	93.2	99.5			6.40
	Lead	102	102	96.9	102			5.08
	Nickel	99.8	98.7	91.9	97.5			5.76
	Silver	111	109	106	109			2.58
EPA 300.0 Rev. 2.1	Chloride	96.7	101				0.906	
	Chloride	99.8	101	100				0.355
	Sulfate	100	99.9	97.4			0.894	
EPA 350.1 Rev. 2.0	Ammonia-N	93.6	92.2	93.9				1.63
	Ammonia-N	92.7	94.5	92.6				1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.7						4.14
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100	103				2.46
	NO2NO3-N	102	97.5	98.0				0.512
EPA 365.1 Rev. 2.0	Total-P	101	103	104				0.998
	Total-P	105	101	100				0.931
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.6	98.5				0.918
	O-Phosphate-P	98.0	90.4	91.1				0.771
SM 2120 B	Color (true)						0.367	
SM 2320 B-97	Total Alkalinity	101					1.62	
SM 2540 C-97	TDS						3.16	
	TDS						3.98	
	TDS						7.31	
SM 4500 F-C-97	Fluoride	101	102	101				0.480
SM 5310 B-00	Organic Carbon	101	98.7	99.2				0.367
	Organic Carbon	97.4	101					0.830

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1982074, 1982075, 1982076, 1982077
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1982074, 1982075, 1982076, 1982077
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1982040, 1982041, 1982042, 1982043, 1982046, 1982049, 1982052
SM 2120 B / E31780	True Color measured at 450 nm	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1982036, 1982037, 1982038, 1982039, 1982045, 1982048, 1982051

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	04/06/2018			04/06/2018 15:08	William L. Brown IV	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
EPA 200.7 Rev. 4.4	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/12/2018 18:01	Betina Topolski	1982074
	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/12/2018 18:09	Betina Topolski	1982075
	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/12/2018 18:16	Betina Topolski	1982076
	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/12/2018 18:24	Betina Topolski	1982077
EPA 200.8 Rev. 5.4	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/16/2018 23:39	Nadine Brooks	1982074
	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/16/2018 23:49	Nadine Brooks	1982075
	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/16/2018 23:58	Nadine Brooks	1982076
	04/06/2018	04/11/2018 15:00	Elliott D. Healy	04/17/2018 00:08	Nadine Brooks	1982077
EPA 300.0 Rev. 2.1	04/06/2018			04/10/2018 21:24	Lipi Saha	1982032
	04/06/2018			04/10/2018 22:12	Lipi Saha	1982033
	04/06/2018			04/10/2018 22:24	Lipi Saha	1982034
	04/06/2018			04/10/2018 22:36	Lipi Saha	1982035
	04/06/2018			04/10/2018 22:48	Lipi Saha	1982044
	04/06/2018			04/10/2018 23:00	Lipi Saha	1982047
	04/06/2018			04/10/2018 23:36	Lipi Saha	1982050
	04/06/2018			04/13/2018 01:55	Lipi Saha	1982050
EPA 350.1 Rev. 2.0	04/06/2018			04/16/2018 11:32	Ping Hua	1982036
	04/06/2018			04/16/2018 11:33	Ping Hua	1982037
	04/06/2018			04/16/2018 11:35	Ping Hua	1982038
	04/06/2018			04/16/2018 11:36	Ping Hua	1982039
	04/06/2018			04/16/2018 11:48	Ping Hua	1982045
	04/06/2018			04/16/2018 11:53	Ping Hua	1982048
	04/06/2018			04/16/2018 12:09	Ping Hua	1982051
EPA 351.2 Rev. 2.0	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 09:58	Joseph Suarez	1982036
	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 10:03	Joseph Suarez	1982037
	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 10:04	Joseph Suarez	1982038
	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 10:06	Joseph Suarez	1982039
	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 10:08	Joseph Suarez	1982045
	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 10:09	Joseph Suarez	1982048
	04/06/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 10:14	Joseph Suarez	1982051
EPA 353.2 Rev. 2.0	04/06/2018			04/16/2018 12:36	Lauren Bottorf	1982036
	04/06/2018			04/16/2018 12:38	Lauren Bottorf	1982037
	04/06/2018			04/16/2018 12:39	Lauren Bottorf	1982038
	04/06/2018			04/16/2018 12:46	Lauren Bottorf	1982039
	04/06/2018			04/16/2018 12:52	Lauren Bottorf	1982051
	04/06/2018			04/16/2018 12:54	Lauren Bottorf	1982045
	04/06/2018			04/16/2018 12:55	Lauren Bottorf	1982048
EPA 365.1 Rev. 2.0	04/06/2018	04/12/2018 12:40	Sima Feizi	04/18/2018 12:11	Beverly Y. Sanders	1982045

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	04/06/2018	04/12/2018 12:40	Sima Feizi	04/18/2018 12:13	Beverly Y. Sanders	1982048
	04/06/2018	04/12/2018 12:40	Sima Feizi	04/18/2018 12:14	Beverly Y. Sanders	1982051
	04/06/2018	04/12/2018 12:40	Sima Feizi	04/19/2018 07:58	Beverly Y. Sanders	1982036
	04/06/2018	04/12/2018 12:40	Sima Feizi	04/19/2018 07:59	Beverly Y. Sanders	1982037, 1982038
	04/06/2018	04/12/2018 12:40	Sima Feizi	04/19/2018 08:02	Beverly Y. Sanders	1982039
EPA 365.1 Rev. 2.0 dissolved	04/06/2018			04/06/2018 16:08	Megan Treadwell	1982046
	04/06/2018			04/06/2018 16:26	Megan Treadwell	1982040
	04/06/2018			04/06/2018 16:27	Megan Treadwell	1982041
	04/06/2018			04/06/2018 16:32	Megan Treadwell	1982042
	04/06/2018			04/06/2018 16:33	Megan Treadwell	1982043
	04/06/2018			04/06/2018 16:34	Megan Treadwell	1982049, 1982052
SM 2120 B	04/06/2018			04/06/2018 15:03	Tanya Welborn	1982044
	04/06/2018			04/06/2018 15:04	Tanya Welborn	1982047
	04/06/2018			04/06/2018 15:05	Tanya Welborn	1982050
	04/06/2018			04/06/2018 15:13	Tanya Welborn	1982032
	04/06/2018			04/06/2018 15:14	Tanya Welborn	1982033
	04/06/2018			04/06/2018 15:15	Tanya Welborn	1982034
	04/06/2018			04/06/2018 15:16	Tanya Welborn	1982035
SM 2320 B-97	04/06/2018			04/16/2018 11:48	Dale L. Simmons	1982032
	04/06/2018			04/16/2018 11:58	Dale L. Simmons	1982033
	04/06/2018			04/16/2018 12:08	Dale L. Simmons	1982034
	04/06/2018			04/16/2018 12:18	Dale L. Simmons	1982035
	04/06/2018			04/16/2018 12:28	Dale L. Simmons	1982044
	04/06/2018			04/16/2018 12:38	Dale L. Simmons	1982047
	04/06/2018			04/16/2018 12:47	Dale L. Simmons	1982050
SM 2540 C-97	04/06/2018			04/09/2018 14:02	Yijie Li	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 2540 D-97	04/06/2018			04/09/2018 14:02	Yijie Li	1982032, 1982033, 1982034, 1982035, 1982044, 1982047, 1982050
SM 4500 F-C-97	04/06/2018			04/16/2018 11:48	Dale L. Simmons	1982032
	04/06/2018			04/16/2018 11:58	Dale L. Simmons	1982033
	04/06/2018			04/16/2018 12:08	Dale L. Simmons	1982034
	04/06/2018			04/16/2018 12:18	Dale L. Simmons	1982035
	04/06/2018			04/16/2018 12:28	Dale L. Simmons	1982044
	04/06/2018			04/16/2018 12:38	Dale L. Simmons	1982047
	04/06/2018			04/16/2018 12:47	Dale L. Simmons	1982050
SM 5310 B-00	04/06/2018			04/12/2018 19:51	Julia Storbeck	1982037
	04/06/2018			04/12/2018 21:27	Julia Storbeck	1982038
	04/06/2018			04/12/2018 21:43	Julia Storbeck	1982039
	04/06/2018			04/12/2018 22:27	Julia Storbeck	1982045

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	04/06/2018			04/12/2018 22:42	Julia Storbeck	1982048
	04/06/2018			04/12/2018 22:56	Julia Storbeck	1982051
	04/06/2018			04/13/2018 05:54	Megan Treadwell	1982036