Chemical Analysis Report

NE-DIST-2018-05-10-02

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

Event Description: **Melrose lakes**
Request ID: **RQ-2018-05-07-30**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 14-JUN-2018 11:56

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 ROSA CENTER **Collection Date/Time: 05/09/2018 13:30**

Field ID: G2NE1130 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991897	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P345060	
	EPA 300.0 Rev. 2.1	Chloride	9.6		mg Cl/L	P345277	
		Sulfate	8.1		mg SO4/L	P345279	
	SM 2120 B	Color (true)	5.1	I	PCU	P345038	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	34		mg/L	P345475	
	SM 2540 D-97	TSS	2	U	mg/L	P345286	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1991899	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P345386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P345398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P345245	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P345145	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P345359	
1991901	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345054	

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.
EPA 300.0 Rev. 2.1: Sulfate: 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.

Sample Location: GOOSE LAKE **Collection Date/Time: 05/09/2018 12:50**

Field ID: 20030980 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991898	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P345060	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P345277	
		Sulfate	0.67		mg SO4/L	P345279	
	SM 2120 B	Color (true)	650		PCU	P345038	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	94		mg/L	P345475	
	SM 2540 D-97	TSS	2	U	mg/L	P345286	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P345485	
1991900	EPA 350.1 Rev. 2.0	Ammonia-N	0.23		mg N/L	P345386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P345398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345245	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P345145	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P345359	
1991902	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P345054	

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.
EPA 300.0 Rev. 2.1: Sulfate: 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.

Sample Location: ROSS LAKE CENTER **Collection Date/Time: 05/09/2018 12:25**

Field ID: 20030454 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991903	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P345060	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P345277	
		Sulfate	0.65		mg SO4/L	P345279	
	SM 2120 B	Color (true)	660		PCU	P345038	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	108		mg/L	P345475	
	SM 2540 D-97	TSS	2	U	mg/L	P345286	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P345485	
1991907	EPA 350.1 Rev. 2.0	Ammonia-N	0.45		mg N/L	P345386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P345398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P345245	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P345300	
	SM 5310 B-00	Organic Carbon	40		mg C/L	P345359	
1991911	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P345054	
1991945	EPA 200.7 Rev. 4.4	Calcium	2.00		mg/L	P345172	
		Iron	830		ug/L	P345282	
		Magnesium	1.33		mg/L	P345172	
		Potassium	1.8		mg/L	P345172	
		Sodium	4.7		mg/L	P345172	
		Zinc	5.0	U	ug/L	P345172	
	EPA 200.8 Rev. 5.4	Arsenic	1.06		ug/L	P345282	
		Cadmium	0.020	U	ug/L	P345282	
		Chromium	0.78	I	ug/L	P345282	
		Copper	0.34	I	ug/L	P345282	
		Lead	0.45		ug/L	P345282	
		Nickel	0.62	I	ug/L	P345282	
		Silver	0.010	U	ug/L	P345282	

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.
EPA 300.0 Rev. 2.1: Sulfate: 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 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: LAKE SUGGS CTR **Collection Date/Time: 05/09/2018 11:45**

Field ID: 20030922 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991904	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P345060	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P345277	
		Sulfate	0.59		mg SO4/L	P345279	
	SM 2120 B	Color (true)	820		PCU	P345038	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	140		mg/L	P345475	
	SM 2540 D-97	TSS	2	U	mg/L	P345286	

Field ID: 20030922 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991904	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P345485	
1991908	EPA 350.1 Rev. 2.0	Ammonia-N	1.0		mg N/L	P345386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.4		mg N/L	P345398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345406	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P345300	
	SM 5310 B-00	Organic Carbon	56		mg C/L	P345359	
1991912	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P345054	
1991946	EPA 200.7 Rev. 4.4	Calcium	2.07		mg/L	P345172	
		Iron	1.04E+03		ug/L	P345282	
		Magnesium	1.59		mg/L	P345172	
		Potassium	2.0		mg/L	P345172	
		Sodium	3.9		mg/L	P345172	
		Zinc	5.0	U	ug/L	P345172	
	EPA 200.8 Rev. 5.4	Arsenic	1.21		ug/L	P345282	
		Cadmium	0.020	U	ug/L	P345282	
		Chromium	0.73	I	ug/L	P345282	
		Copper	0.26	I	ug/L	P345282	
		Lead	0.79		ug/L	P345282	
		Nickel	0.77	I	ug/L	P345282	
		Silver	0.010	U	ug/L	P345282	

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.
EPA 300.0 Rev. 2.1: Sulfate: 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 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 05/23/2018.

Sample Location: LAKE ROWAN CTR **Collection Date/Time: 05/09/2018 10:55**

Field ID: 20030923 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991905	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P345060	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P345277	
		Sulfate	0.92		mg SO4/L	P345279	
	SM 2120 B	Color (true)	550		PCU	P345038	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	121		mg/L	P345475	
	SM 2540 D-97	TSS	2	U	mg/L	P345286	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1991909	EPA 350.1 Rev. 2.0	Ammonia-N	2.9		mg N/L	P345386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	6.2		mg N/L	P345398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P345406	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P345300	
	SM 5310 B-00	Organic Carbon	53		mg C/L	P345359	

Field ID: 20030923 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991913	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345054	
1991947	EPA 200.7 Rev. 4.4	Calcium	1.61		mg/L	P345172	
		Iron	500		ug/L	P345282	
		Magnesium	1.26		mg/L	P345172	
		Potassium	1.2		mg/L	P345172	
		Sodium	3.6		mg/L	P345172	
		Zinc	5.0	U	ug/L	P345172	
	EPA 200.8 Rev. 5.4	Arsenic	0.93		ug/L	P345282	
		Cadmium	0.020	U	ug/L	P345282	
		Chromium	0.43	I	ug/L	P345282	
		Copper	0.20	U	ug/L	P345282	
		Lead	0.91		ug/L	P345282	
		Nickel	0.39	I	ug/L	P345282	
		Silver	0.010	U	ug/L	P345282	

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.
EPA 300.0 Rev. 2.1: Sulfate: 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 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 05/23/2018.

Sample Location: LAKE ROWAN-280M E OF CENTER **Collection Date/Time: 05/09/2018 11:15**

Field ID: G2NE0006 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991906	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P345060	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P345277	
		Sulfate	1.1		mg SO4/L	P345279	
	SM 2120 B	Color (true)	540		PCU	P345038	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345482	RPD
	SM 2540 C-97	TDS	122		mg/L	P345475	
	SM 2540 D-97	TSS	2	U	mg/L	P345286	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345485	
1991910	EPA 350.1 Rev. 2.0	Ammonia-N	2.9		mg N/L	P345386	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	5.9		mg N/L	P345399	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P345406	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P345300	
	SM 5310 B-00	Organic Carbon	53		mg C/L	P345359	
1991914	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345054	
1991948	EPA 200.7 Rev. 4.4	Calcium	2.28		mg/L	P345172	
		Iron	490		ug/L	P345282	
		Magnesium	1.56		mg/L	P345172	
		Potassium	1.2		mg/L	P345172	
		Sodium	3.8		mg/L	P345172	

Field ID: G2NE0006 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991948	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P345172	
	EPA 200.8 Rev. 5.4	Arsenic	0.91		ug/L	P345282	
		Cadmium	0.020	U	ug/L	P345282	
		Chromium	0.41	I	ug/L	P345282	
		Copper	0.55	I	ug/L	P345282	
		Lead	0.88		ug/L	P345282	
		Nickel	0.49	I	ug/L	P345282	
		Silver	0.010	U	ug/L	P345282	

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.
EPA 300.0 Rev. 2.1: Sulfate: 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 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 05/23/2018.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345060

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345172

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345282

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345282

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345277

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345279

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345386

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345398

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345399

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345245

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345406

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345145

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345300

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345054

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

Reference Method: SM 2120 B
Batch ID: P345038

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P345482

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

Reference Method: SM 2540 C-97
Batch ID: P345475

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P345286

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345359

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: P345172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.4		P	85 - 115
Magnesium	100		P	85 - 115
Potassium	97.7		P	85 - 115
Sodium	97.9		P	85 - 115
Zinc	99.3		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345282

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345282

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	96.6		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	98.4		P	85 - 115
Lead	96.2		P	85 - 115
Nickel	101		P	85 - 115
Silver	99.7		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	92.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345279

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345386

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345398

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345399

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345245

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345406

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345145

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345300

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345054

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

Reference Method: SM 2320 B-97
Batch ID: P345482

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.1		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988363	Calcium	97.0		P	80 - 120
1988363	Magnesium	99.3		P	80 - 120
1988363	Potassium	99.5		P	80 - 120
1988363	Sodium	97.4		P	80 - 120
1988363	Zinc	93.9	93.2	P/P	80 - 120
1988366	Potassium	101		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988366	Sodium	97.7		P	80 - 120
1988366	Zinc	92.9		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990972	Iron	103	104	P/P	80 - 120
1992511	Iron	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990972	Arsenic	102	102	P/P	80 - 120
1990972	Cadmium	99.6	98.9	P/P	80 - 120
1990972	Chromium	93.0	93.8	P/P	80 - 120
1990972	Copper	94.0	93.8	P/P	80 - 120
1990972	Lead	97.0	96.2	P/P	80 - 120
1990972	Nickel	98.3	96.6	P/P	80 - 120
1990972	Silver	99.5	99.9	P/P	80 - 120
1992511	Arsenic	103		P	80 - 120
1992511	Cadmium	99.5		P	80 - 120
1992511	Chromium	94.6		P	80 - 120
1992511	Copper	96.2		P	80 - 120
1992511	Lead	95.8		P	80 - 120
1992511	Nickel	99.1		P	80 - 120
1992511	Silver	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992071	Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992071	Sulfate	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991843	Ammonia-N	97.8	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991831	Kjeldahl Nitrogen	102	96.2	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992103	Kjeldahl Nitrogen	99.6	96.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991899	NO2NO3-N	98.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991908	NO2NO3-N	90.5	91.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991831	Total-P	99.1	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992058	Total-P	98.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991832	O-Phosphate-P	93.2	93.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992222	Fluoride	95.2	93.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991899	Organic Carbon	94.0	95.1	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991808	Turbidity	4.26	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988363	Calcium	1.52	Spike	P	0 - 20
1988363	Magnesium	2.57	Spike	P	0 - 20
1988363	Potassium	1.78	Spike	P	0 - 20
1988363	Sodium	1.64	Spike	P	0 - 20
1988363	Zinc	0.765	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P345282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990972	Iron	0.856	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P345282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990972	Arsenic	0.702	Spike	P	0 - 20
1990972	Cadmium	0.625	Spike	P	0 - 20
1990972	Chromium	0.818	Spike	P	0 - 20
1990972	Copper	0.230	Spike	P	0 - 20
1990972	Lead	0.849	Spike	P	0 - 20
1990972	Nickel	1.73	Spike	P	0 - 20
1990972	Silver	0.450	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991830	Chloride	0.213	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991830	Sulfate	0.204	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991843	Ammonia-N	1.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991831	Kjeldahl Nitrogen	4.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992103	Kjeldahl Nitrogen	2.03	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991899	NO2NO3-N	0.985	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991908	NO2NO3-N	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991831	Total-P	1.70	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992058	Total-P	0.469	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991832	O-Phosphate-P	0.642	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P345038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991936	Color (true)	0.416	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P345482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992222	Total Alkalinity	4.30	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P345475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992057	TDS	3.89	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P345485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992222	Fluoride	1.45	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P345359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991899	Organic Carbon	1.01	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: A83732
Included Lab Sample IDs: 1991897, 1991898, 1991903, 1991904, 1991905, 1991906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.0	99.9	P/P	90 - 110
Chloride	98.3	97.0	P/P	90 - 110
Sulfate	97.3	100	P/P	90 - 110
Sulfate	97.4	97.3	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A83803
Included Lab Sample IDs: 1991897, 1991898, 1991903, 1991904, 1991905, 1991906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	104	104	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83807
Included Lab Sample IDs: 1991901, 1991902, 1991911, 1991912, 1991913, 1991914

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83809
Included Lab Sample IDs: 1991897, 1991898, 1991903, 1991904, 1991905, 1991906

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83865
Included Lab Sample IDs: 1991899, 1991900, 1991907

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83872
Included Lab Sample IDs: 1991945, 1991946, 1991947, 1991948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	95.3	94.8	P/P	90 - 110
Calcium	95.6	95.3	P/P	90 - 110
Magnesium	95.3	95.4	P/P	90 - 110
Magnesium	95.4	94.4	P/P	90 - 110
Potassium	93.6	93.2	P/P	90 - 110
Potassium	94.1	93.6	P/P	90 - 110
Sodium	95.1	96.0	P/P	90 - 110
Sodium	96.4	95.1	P/P	90 - 110
Zinc	95.4	95.5	P/P	90 - 110
Zinc	95.5	94.9	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83906
Included Lab Sample IDs: 1991899, 1991900, 1991907, 1991908, 1991909, 1991910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	94.7	P/P	90 - 110
Organic Carbon	94.7	94.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83925
Included Lab Sample IDs: 1991899, 1991900, 1991907, 1991908, 1991909, 1991910

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83934
Included Lab Sample IDs: 1991908, 1991909, 1991910

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A83959
Included Lab Sample IDs: 1991945, 1991946, 1991947, 1991948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.9	100	P/P	90 - 110
Cadmium	97.3	98.4	P/P	90 - 110
Chromium	95.2	98.2	P/P	90 - 110
Copper	99.0	100	P/P	90 - 110
Lead	95.9	98.4	P/P	90 - 110
Nickel	99.1	99.7	P/P	90 - 110
Silver	98.7	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83969
Included Lab Sample IDs: 1991897, 1991898, 1991903, 1991904, 1991905, 1991906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.4	P/P	90 - 110
Total Alkalinity	99.4	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83969
Included Lab Sample IDs: 1991897, 1991898, 1991903, 1991904, 1991905, 1991906

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110
Fluoride	98.1	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83972
Included Lab Sample IDs: 1991900

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83986
Included Lab Sample IDs: 1991945, 1991946, 1991947, 1991948

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83986
Included Lab Sample IDs: 1991945, 1991946, 1991947, 1991948

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84004
Included Lab Sample IDs: 1991899, 1991900, 1991907, 1991908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.5	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84005
Included Lab Sample IDs: 1991909

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.1	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84007
Included Lab Sample IDs: 1991899

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84011
Included Lab Sample IDs: 1991907, 1991908

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	105	P/P	90 - 110
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84025
Included Lab Sample IDs: 1991910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.4	94.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84046
Included Lab Sample IDs: 1991909, 1991910

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	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						4.26	
EPA 200.7 Rev. 4.4	Calcium	99.4	97.0					1.52
	Iron	106	103	104	104			0.856
	Magnesium	100	99.3					2.57
	Potassium	97.7	99.5	101				1.78
	Sodium	97.9	97.4	97.7				1.64
	Zinc	99.3	93.9	93.2	92.9			0.765
EPA 200.8 Rev. 5.4	Arsenic	101	103	102	102			0.702
	Cadmium	96.6	99.5	99.6	98.9			0.625
	Chromium	97.9	94.6	93.0	93.8			0.818
	Copper	98.4	96.2	94.0	93.8			0.230
	Lead	96.2	95.8	97.0	96.2			0.849
	Nickel	101	99.1	98.3	96.6			1.73
	Silver	99.7	101	99.5	99.9			0.450
EPA 300.0 Rev. 2.1	Chloride	92.9	94.2				0.213	
	Sulfate	92.2	93.6				0.204	
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.8	99.9				1.78
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	96.2				4.07
	Kjeldahl Nitrogen	104	99.6	96.7				2.03
EPA 353.2 Rev. 2.0	NO2NO3-N	101	98.8	99.8				0.985
	NO2NO3-N	98.5	90.5	91.5				1.10
EPA 365.1 Rev. 2.0	Total-P	94.8	99.1	101				1.70
	Total-P	103	98.0	97.5				0.469
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	93.2	93.8				0.642
SM 2120 B	Color (true)						0.416	
SM 2320 B-97	Total Alkalinity	102					4.30	
SM 2540 C-97	TDS						3.89	
SM 4500 F-C-97	Fluoride	95.6	95.2	93.6				1.45
SM 5310 B-00	Organic Carbon	95.1	94.0	95.1				1.01

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1991945, 1991946, 1991947, 1991948
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1991945, 1991946, 1991947, 1991948
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1991899, 1991900, 1991907, 1991908, 1991909, 1991910
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1991899, 1991900, 1991907, 1991908, 1991909, 1991910
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1991899, 1991900, 1991907, 1991908, 1991909, 1991910
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1991899, 1991900, 1991907, 1991908, 1991909, 1991910
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1991901, 1991902, 1991911, 1991912, 1991913, 1991914
SM 2120 B / E31780	True Color measured at 450 nm	1991897, 1991898, 1991903, 1991904, 1991905, 1991906

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1991899, 1991900, 1991907, 1991908, 1991909, 1991910

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/10/2018			05/10/2018 16:14	William L. Brown IV	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
EPA 200.7 Rev. 4.4	05/10/2018	05/14/2018 11:07	Allison Taylor	05/14/2018 20:02	Betina Topolski	1991945
	05/10/2018	05/14/2018 11:07	Allison Taylor	05/14/2018 20:34	Betina Topolski	1991946
	05/10/2018	05/14/2018 11:07	Allison Taylor	05/14/2018 20:39	Betina Topolski	1991947
	05/10/2018	05/14/2018 11:07	Allison Taylor	05/14/2018 20:44	Betina Topolski	1991948
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/17/2018 13:16	Betina Topolski	1991945
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/17/2018 13:23	Betina Topolski	1991946
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/17/2018 13:28	Betina Topolski	1991947
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/17/2018 13:33	Betina Topolski	1991948
EPA 200.8 Rev. 5.4	05/10/2018	05/15/2018 12:30	Allison Taylor	05/16/2018 15:15	Nadine Brooks	1991945
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/16/2018 15:25	Nadine Brooks	1991946
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/16/2018 15:34	Nadine Brooks	1991947
	05/10/2018	05/15/2018 12:30	Allison Taylor	05/16/2018 15:44	Nadine Brooks	1991948
EPA 300.0 Rev. 2.1	05/10/2018			05/12/2018 01:15	Lipi Saha	1991897
	05/10/2018			05/12/2018 01:27	Lipi Saha	1991898
	05/10/2018			05/12/2018 01:39	Lipi Saha	1991903
	05/10/2018			05/12/2018 02:14	Lipi Saha	1991904
	05/10/2018			05/12/2018 02:26	Lipi Saha	1991905
	05/10/2018			05/12/2018 02:38	Lipi Saha	1991906
EPA 350.1 Rev. 2.0	05/10/2018			05/15/2018 11:51	Ping Hua	1991899
	05/10/2018			05/15/2018 11:53	Ping Hua	1991900
	05/10/2018			05/15/2018 11:54	Ping Hua	1991907
	05/10/2018			05/15/2018 11:56	Ping Hua	1991908
	05/10/2018			05/15/2018 11:57	Ping Hua	1991909
	05/10/2018			05/15/2018 12:05	Ping Hua	1991910
EPA 351.2 Rev. 2.0	05/10/2018	05/16/2018 11:00	Adrian Shelby	05/17/2018 18:05	Joseph Suarez	1991899
	05/10/2018	05/16/2018 11:00	Adrian Shelby	05/17/2018 18:06	Joseph Suarez	1991900
	05/10/2018	05/16/2018 11:00	Adrian Shelby	05/17/2018 18:08	Joseph Suarez	1991907
	05/10/2018	05/16/2018 11:00	Adrian Shelby	05/17/2018 18:09	Joseph Suarez	1991908
	05/10/2018	05/16/2018 11:00	Adrian Shelby	05/18/2018 08:26	Joseph Suarez	1991909
	05/10/2018	05/16/2018 11:00	Adrian Shelby	05/18/2018 17:10	Joseph Suarez	1991910
EPA 353.2 Rev. 2.0	05/10/2018			05/14/2018 14:21	Lauren Bottorf	1991899
	05/10/2018			05/14/2018 14:23	Lauren Bottorf	1991900
	05/10/2018			05/14/2018 14:24	Lauren Bottorf	1991907
	05/10/2018			05/16/2018 11:06	Lauren Bottorf	1991908
	05/10/2018			05/16/2018 11:14	Lauren Bottorf	1991909
	05/10/2018			05/16/2018 11:15	Lauren Bottorf	1991910
EPA 365.1 Rev. 2.0	05/10/2018	05/11/2018 13:15	Sima Feizi	05/16/2018 13:16	Beverly Y. Sanders	1991900
	05/10/2018	05/11/2018 13:15	Sima Feizi	05/18/2018 12:11	Beverly Y. Sanders	1991899

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	05/10/2018	05/15/2018 12:25	Sima Feizi	05/17/2018 11:07	Beverly Y. Sanders	1991907
	05/10/2018	05/15/2018 12:25	Sima Feizi	05/17/2018 11:11	Beverly Y. Sanders	1991908
	05/10/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 09:48	Beverly Y. Sanders	1991909
	05/10/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 09:49	Beverly Y. Sanders	1991910
EPA 365.1 Rev. 2.0 dissolved	05/10/2018			05/10/2018 15:52	Julia Storbeck	1991902
	05/10/2018			05/10/2018 15:53	Julia Storbeck	1991911, 1991912
	05/10/2018			05/10/2018 15:54	Julia Storbeck	1991913
	05/10/2018			05/10/2018 15:55	Julia Storbeck	1991914
	05/10/2018			05/10/2018 15:58	Julia Storbeck	1991901
SM 2120 B	05/10/2018			05/10/2018 14:24	Tanya Welborn	1991897
	05/10/2018			05/10/2018 14:47	Tanya Welborn	1991898
	05/10/2018			05/10/2018 14:48	Tanya Welborn	1991903
	05/10/2018			05/10/2018 14:49	Tanya Welborn	1991904, 1991905
	05/10/2018			05/10/2018 14:50	Tanya Welborn	1991906
SM 2320 B-97	05/10/2018			05/15/2018 23:06	Dale L. Simmons	1991897
	05/10/2018			05/15/2018 23:15	Dale L. Simmons	1991898
	05/10/2018			05/15/2018 23:24	Dale L. Simmons	1991903
	05/10/2018			05/15/2018 23:33	Dale L. Simmons	1991904
	05/10/2018			05/16/2018 00:05	Dale L. Simmons	1991905
	05/10/2018			05/16/2018 00:13	Dale L. Simmons	1991906
SM 2540 C-97	05/10/2018			05/11/2018 17:30	William L. Brown IV	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
SM 2540 D-97	05/10/2018			05/11/2018 17:30	William L. Brown IV	1991897, 1991898, 1991903, 1991904, 1991905, 1991906
SM 4500 F-C-97	05/10/2018			05/15/2018 23:06	Dale L. Simmons	1991897
	05/10/2018			05/15/2018 23:15	Dale L. Simmons	1991898
	05/10/2018			05/15/2018 23:24	Dale L. Simmons	1991903
	05/10/2018			05/15/2018 23:33	Dale L. Simmons	1991904
	05/10/2018			05/16/2018 00:05	Dale L. Simmons	1991905
	05/10/2018			05/16/2018 00:13	Dale L. Simmons	1991906
SM 5310 B-00	05/10/2018			05/15/2018 00:14	Megan Treadwell	1991899
	05/10/2018			05/15/2018 01:44	Megan Treadwell	1991900
	05/10/2018			05/15/2018 01:59	Megan Treadwell	1991907
	05/10/2018			05/15/2018 02:15	Megan Treadwell	1991908
	05/10/2018			05/15/2018 02:31	Megan Treadwell	1991909
	05/10/2018			05/15/2018 02:46	Megan Treadwell	1991910