Chemical Analysis Report

NE-DIST-2018-04-26-01

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

Event Description: **LSJR West2**
Request ID: **RQ-2018-04-23-13**
Customer: **NE-DIST**
Project ID: **SMP**

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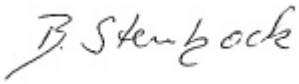
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 07-JUN-2018 10:27



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: MCGRITS CREEK AT OLD PLANK RD **Collection Date/Time: 04/25/2018 12:25**

Field ID: 20030346 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987532	EPA 180.1 Rev. 2.0	Turbidity	5.1	A	NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P344282	
		Sulfate	11		mg SO4/L	P344286	
	SM 2120 B	Color (true)	240		PCU	P344126	
	SM 2320 B-97	Total Alkalinity	7.2		mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	111		mg/L	P344813	
	SM 2540 D-97	TSS	3	I	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P344746	
1987538	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P344623	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P344422	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P344328	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P344292	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P344445	
1987544	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P344196	
1987619	EPA 200.7 Rev. 4.4	Calcium	9.78		mg/L	P344115	
		Iron	1.02E+03		ug/L	P344115	
		Magnesium	1.44		mg/L	P344115	
		Potassium	1.0	I	mg/L	P344115	
		Sodium	9.6		mg/L	P344115	
		Zinc	8.6	I	ug/L	P344115	
	EPA 200.8 Rev. 5.4	Arsenic	0.57		ug/L	P344115	
		Cadmium	0.020	U	ug/L	P344115	
		Chromium	0.77	I	ug/L	P344115	
		Copper	0.52	I	ug/L	P344115	
		Lead	12.9		ug/L	P344115	
		Nickel	0.95		ug/L	P344115	
		Silver	0.010	U	ug/L	P344115	

Ref. Method and Comment:
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 lead result was confirmed in the undigested sample on 05/25/2018.

Sample Location: MCGIRTS CR @ HALSEMA RD **Collection Date/Time: 04/25/2018 12:45**

Field ID: 20030877 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987533	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P344282	
		Sulfate	16		mg SO4/L	P344286	
	SM 2120 B	Color (true)	220		PCU	P344126	
	SM 2320 B-97	Total Alkalinity	5.9		mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	127		mg/L	P344813	
	SM 2540 D-97	TSS	2	U	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P344746	
1987539	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P344623	

Field ID: 20030877 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987539	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P344422	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P344328	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P344292	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P344445	
1987545	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P344196	
1987620	EPA 200.7 Rev. 4.4	Calcium	11.2		mg/L	P344115	
		Iron	1.09E+03		ug/L	P344115	
		Magnesium	1.60		mg/L	P344115	
		Potassium	1.0	I	mg/L	P344115	
		Sodium	9.9		mg/L	P344115	
		Zinc	9.1	I	ug/L	P344115	
	EPA 200.8 Rev. 5.4	Arsenic	0.64		ug/L	P344115	
		Cadmium	0.020	U	ug/L	P344115	
		Chromium	0.75	I	ug/L	P344115	
		Copper	0.94		ug/L	P344115	
		Lead	21.3		ug/L	P344115	
		Nickel	1.11		ug/L	P344115	
		Silver	0.010	U	ug/L	P344115	

Ref. Method and Comment:
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 lead result was confirmed in the undigested sample on 05/25/2018.

Sample Location: YELLOW WATER CR AT BICENTENNIAL **Collection Date/Time: 04/25/2018 09:40**

Field ID: G2NE1153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987534	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P344282	
		Sulfate	1.1		mg SO4/L	P344286	
	SM 2120 B	Color (true)	340		PCU	P344126	
	SM 2320 B-97	Total Alkalinity	7.8		mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	104		mg/L	P344813	
	SM 2540 D-97	TSS	3	I	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P344746	
1987540	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P344624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P344305	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P344328	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P344292	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P344445	
1987546	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P344196	
1987621	EPA 200.7 Rev. 4.4	Calcium	6.86		mg/L	P344115	
		Iron	1.39E+03		ug/L	P344115	
		Magnesium	1.32		mg/L	P344115	
		Potassium	0.30	U	mg/L	P344115	
		Sodium	7.1		mg/L	P344115	

Field ID: G2NE1153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987621	EPA 200.7 Rev. 4.4	Zinc	12	I	ug/L	P344115	
	EPA 200.8 Rev. 5.4	Arsenic	0.49		ug/L	P344115	
		Cadmium	0.020	U	ug/L	P344115	
		Chromium	1.0	I	ug/L	P344115	
		Copper	4.42		ug/L	P344115	
		Lead	1.38		ug/L	P344115	
		Nickel	1.01		ug/L	P344115	
		Silver	0.010	U	ug/L	P344115	

Ref. Method and Comment:
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 and lead results were confirmed in the undigested sample on 05/25/2018.

Sample Location: YELLOW WATER CREEK AT STATE FOREST Collection Date/Time: 04/25/2018 10:50

Field ID: G2NE1163 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987535	EPA 180.1 Rev. 2.0	Turbidity	7.5		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P344282	
		Sulfate	3.2		mg SO4/L	P344286	
	SM 2120 B	Color (true)	210		PCU	P344126	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	94		mg/L	P344813	
	SM 2540 D-97	TSS	4	I	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P344746	
1987541	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P344624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P344305	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P344328	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P344292	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P344445	
1987547	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P344196	
1987622	EPA 200.7 Rev. 4.4	Calcium	10.2		mg/L	P344115	
		Iron	980		ug/L	P344115	
		Magnesium	1.57		mg/L	P344115	
		Potassium	0.47	I	mg/L	P344115	
		Sodium	6.6		mg/L	P344115	
		Zinc	7.8	I	ug/L	P344115	
	EPA 200.8 Rev. 5.4	Arsenic	0.47		ug/L	P344115	
		Cadmium	0.030	I	ug/L	P344115	
		Chromium	0.83	I	ug/L	P344115	
		Copper	2.41		ug/L	P344115	
		Lead	1.04		ug/L	P344115	
		Nickel	0.70	I	ug/L	P344115	
		Silver	0.010	U	ug/L	P344115	

Ref. Method and Comment:
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 lead result was confirmed in the undigested sample on 05/25/2018.

Sample Location: YELLOW WATER CR AT SR 228 **Collection Date/Time: 04/25/2018 10:15**

Field ID: 20030549 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987536	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P344282	
		Sulfate	1.2		mg SO4/L	P344286	
	SM 2120 B	Color (true)	330		PCU	P344126	
	SM 2320 B-97	Total Alkalinity	8.3		mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	98		mg/L	P344813	
	SM 2540 D-97	TSS	3	I	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P344746	
1987542	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P344624	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P344220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P344329	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P344322	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P344445	
1987548	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P344196	
1987623	EPA 200.7 Rev. 4.4	Calcium	6.95		mg/L	P344115	
		Iron	1.33E+03		ug/L	P344115	
		Magnesium	1.31		mg/L	P344115	
		Potassium	0.30	U	mg/L	P344115	
		Sodium	7.0		mg/L	P344115	
		Zinc	11	I	ug/L	P344115	
	EPA 200.8 Rev. 5.4	Arsenic	0.48		ug/L	P344115	
		Cadmium	0.020	U	ug/L	P344115	
		Chromium	1.2	I	ug/L	P344115	
		Copper	4.38		ug/L	P344115	
		Lead	1.67		ug/L	P344115	
		Nickel	1.05		ug/L	P344115	
		Silver	0.010	U	ug/L	P344115	

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.
EPA 200.8 Rev. 5.4: The copper and lead results were confirmed in the undigested sample on 05/25/2018.

Sample Location: NE ROC DI **Collection Date/Time: 04/25/2018 11:10**

Field ID: BLANK 04232018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987537	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P344152	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P344282	
		Sulfate	0.20	U	mg SO4/L	P344286	
	SM 2120 B	Color (true)	2.5	U	PCU	P344126	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P344830	
	SM 2540 C-97	TDS	15	U	mg/L	P344813	
	SM 2540 D-97	TSS	2	U	mg/L	P344597	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P344746	
1987543	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P344624	

Field ID: BLANK 04232018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987543	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P344220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344329	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P344322	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P344445	
1987549	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344196	
1987624	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P344115	
		Iron	30	U	ug/L	P344756	
		Magnesium	0.040	U	mg/L	P344115	
		Potassium	0.30	U	mg/L	P344115	
		Sodium	0.50	U	mg/L	P344115	
		Zinc	5.0	U	ug/L	P344115	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P344115	
		Cadmium	0.020	U	ug/L	P344115	
		Chromium	0.40	U	ug/L	P344756	
		Copper	0.20	U	ug/L	P344115	
		Lead	0.050	U	ug/L	P344115	
		Nickel	0.20	U	ug/L	P344756	
		Silver	0.010	U	ug/L	P344115	

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: P344152

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344115

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 200.7 Rev. 4.4
Batch ID: P344756

Component	Result	Code	Units
Iron	30	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344115

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 200.8 Rev. 5.4
Batch ID: P344756

Component	Result	Code	Units
Chromium	1.6		ug/L
Nickel	0.74	I	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344282

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344623

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344220

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344305

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344422

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344328

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344292

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

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

Reference Method: SM 2120 B
Batch ID: P344126

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344830

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

Reference Method: SM 2540 C-97
Batch ID: P344813

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P344597

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344445

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: P344115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	103		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	100		P	85 - 115
Sodium	101		P	85 - 115
Zinc	96.3		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	95.2		P	85 - 115
Copper	95.9		P	85 - 115
Lead	96.8		P	85 - 115
Nickel	99.9		P	85 - 115
Silver	99.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	94.9		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	97.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344282

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344623

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344220

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344305

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: P344422

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344328

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344292

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344322

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

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

Reference Method: SM 2320 B-97
Batch ID: P344830

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

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344445

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: P344115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987108	Calcium	97.6		P	80 - 120
1987108	Iron	100	100	P/P	80 - 120
1987108	Magnesium	100	101	P/P	80 - 120
1987108	Potassium	98.0	99.0	P/P	80 - 120
1987108	Sodium	100	98.9	P/P	80 - 120
1987108	Zinc	94.0	93.3	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987620	Calcium	98.8		P	80 - 120
1987620	Iron	99.8		P	80 - 120
1987620	Magnesium	101		P	80 - 120
1987620	Potassium	97.4		P	80 - 120
1987620	Sodium	97.5		P	80 - 120
1987620	Zinc	96.6		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989441	Iron	103	103	P/P	80 - 120
1990383	Iron	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987108	Arsenic	102	103	P/P	80 - 120
1987108	Cadmium	100	99.8	P/P	80 - 120
1987108	Chromium	94.0	94.6	P/P	80 - 120
1987108	Copper	96.1	95.7	P/P	80 - 120
1987108	Lead	96.0	97.0	P/P	80 - 120
1987108	Nickel	99.0	100	P/P	80 - 120
1987108	Silver	99.9	99.2	P/P	80 - 120
1987620	Arsenic	102		P	80 - 120
1987620	Cadmium	102		P	80 - 120
1987620	Chromium	96.5		P	80 - 120
1987620	Copper	94.4		P	80 - 120
1987620	Lead	100		P	80 - 120
1987620	Nickel	99.7		P	80 - 120
1987620	Silver	98.8		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989441	Chromium	98.4	98.2	P/P	80 - 120
1989441	Nickel	98.9	98.9	P/P	80 - 120
1990383	Chromium	101		P	80 - 120
1990383	Nickel	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987200	Chloride	98.9		P	90 - 110
1987533	Chloride	99.7		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987200	Sulfate	98.9		P	90 - 110
1987533	Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987207	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987540	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987541	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987497	Kjeldahl Nitrogen	112	110	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987369	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987542	NO2NO3-N	99.6	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987497	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987630	Total-P	103	104	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987544	O-Phosphate-P	94.7	95.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987627	Fluoride	94.8	94.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987202	Organic Carbon	96.7	95.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987532	Turbidity	6.86	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987108	Calcium	0.440	Spike	P	0 - 20
1987108	Iron	0.290	Spike	P	0 - 20
1987108	Magnesium	0.691	Spike	P	0 - 20
1987108	Potassium	0.907	Spike	P	0 - 20
1987108	Sodium	0.734	Spike	P	0 - 20
1987108	Zinc	0.649	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989441	Iron	0.0636	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987108	Arsenic	1.00	Spike	P	0 - 20
1987108	Cadmium	0.612	Spike	P	0 - 20
1987108	Chromium	0.639	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987108	Copper	0.377	Spike	P	0 - 20
1987108	Lead	1.08	Spike	P	0 - 20
1987108	Nickel	1.05	Spike	P	0 - 20
1987108	Silver	0.647	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989441	Chromium	0.251	Spike	P	0 - 20
1989441	Nickel	0.0564	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987200	Chloride	0.372	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987200	Sulfate	0.683	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987207	Ammonia-N	0.270	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987540	Ammonia-N	0.219	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987633	Kjeldahl Nitrogen	3.72	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987541	Kjeldahl Nitrogen	3.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987497	Kjeldahl Nitrogen	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987369	NO2NO3-N	0.849	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987542	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987497	Total-P	1.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987630	Total-P	0.984	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987544	O-Phosphate-P	0.782	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P344126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987495	Color (true)	6.36	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P344830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987627	Total Alkalinity	1.01	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987626	TDS	1.40	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987627	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987202	Organic Carbon	0.817	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: A83415
Included Lab Sample IDs: 1987532, 1987533, 1987534, 1987535, 1987536, 1987537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110
Chloride	103	100	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110
Sulfate	104	99.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A83481
Included Lab Sample IDs: 1987532, 1987533, 1987534, 1987535, 1987536, 1987537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	90 - 115
Color (true)	98.3	99.3	P/P	90 - 115

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83486
Included Lab Sample IDs: 1987532, 1987533, 1987534, 1987535, 1987536, 1987537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	98.5	P/P	95 - 105
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83498
Included Lab Sample IDs: 1987544, 1987545, 1987546, 1987547, 1987548, 1987549

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83527
Included Lab Sample IDs: 1987619, 1987620, 1987621, 1987622, 1987623, 1987624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	96.3	96.6	P/P	90 - 110
Calcium	96.6	96.0	P/P	90 - 110
Calcium	96.7	97.7	P/P	90 - 110
Iron	96.8	96.6	P/P	90 - 110
Iron	96.8	96.8	P/P	90 - 110
Magnesium	96.8	97.1	P/P	90 - 110
Magnesium	97.1	96.6	P/P	90 - 110
Magnesium	97.4	98.3	P/P	90 - 110
Potassium	96.3	96.6	P/P	90 - 110
Potassium	96.5	96.8	P/P	90 - 110
Potassium	96.6	97.4	P/P	90 - 110
Sodium	96.3	97.1	P/P	90 - 110
Sodium	96.5	96.3	P/P	90 - 110
Sodium	97.2	97.7	P/P	90 - 110
Zinc	94.9	96.0	P/P	90 - 110
Zinc	96.0	95.5	P/P	90 - 110
Zinc	97.0	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83549
Included Lab Sample IDs: 1987538, 1987539, 1987540, 1987541, 1987542, 1987543

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: A83557
Included Lab Sample IDs: 1987619, 1987620, 1987621, 1987622, 1987623, 1987624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	102	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Cadmium	100	99.1	P/P	90 - 110
Cadmium	99.4	99.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A83557
Included Lab Sample IDs: 1987619, 1987620, 1987621, 1987622, 1987623, 1987624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.0	98.0	P/P	90 - 110
Copper	98.4	98.2	P/P	90 - 110
Copper	99.0	98.4	P/P	90 - 110
Lead	97.3	97.9	P/P	90 - 110
Lead	98.2	97.8	P/P	90 - 110
Nickel	99.2	98.8	P/P	90 - 110
Silver	101	99.0	P/P	90 - 110
Silver	99.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83564
Included Lab Sample IDs: 1987542, 1987543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	93.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83571
Included Lab Sample IDs: 1987540, 1987541

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	93.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83590
Included Lab Sample IDs: 1987538, 1987539, 1987540, 1987541, 1987542, 1987543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.5	98.2	P/P	90 - 110
Organic Carbon	98.2	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83623
Included Lab Sample IDs: 1987538, 1987539

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83631
Included Lab Sample IDs: 1987538, 1987539, 1987540, 1987541, 1987542, 1987543

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83650
Included Lab Sample IDs: 1987538, 1987539, 1987540, 1987541, 1987542, 1987543

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83650
Included Lab Sample IDs: 1987538, 1987539, 1987540, 1987541, 1987542, 1987543

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

Reference Method: SM 4500 F-C-97
Run ID: A83684
Included Lab Sample IDs: 1987532, 1987533, 1987534, 1987535, 1987536, 1987537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	100	P/P	90 - 110
Fluoride	99.0	98.1	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83721
Included Lab Sample IDs: 1987532, 1987533, 1987534, 1987535, 1987536, 1987537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83752
Included Lab Sample IDs: 1987624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	101	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A83783
Included Lab Sample IDs: 1987624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.9	98.2	P/P	90 - 110
Nickel	99.3	97.3	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					6.86	
EPA 200.7 Rev. 4.4	Calcium	101	97.6	98.8			0.440
	Iron	103	100	100	99.8		0.290
	Iron	105	103	103	103		0.0636
	Magnesium	106	100	101	101		0.691
	Potassium	100	98.0	99.0	97.4		0.907
	Sodium	101	100	98.9	97.5		0.734
	Zinc	96.3	94.0	93.3	96.6		0.649

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.8 Rev. 5.4	Arsenic	102	102	103	102			1.00
	Cadmium	100	100	99.8	102			0.612
	Chromium	95.2	94.0	94.6	96.5			0.639
	Chromium	94.9	98.4	98.2	101			0.251
	Copper	95.9	96.1	95.7	94.4			0.377
	Lead	96.8	96.0	97.0	100			1.08
	Nickel	99.9	99.0	100	99.7			1.05
	Nickel	97.5	98.9	98.9	103			0.0564
	Silver	99.7	99.9	99.2	98.8			0.647
EPA 300.0 Rev. 2.1	Chloride	99.5	98.9	99.7			0.372	
	Sulfate	98.3	98.9	96.6			0.683	
EPA 350.1 Rev. 2.0	Ammonia-N	103	103	103				0.270
	Ammonia-N	102	102	101				0.219
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100						3.72
	Kjeldahl Nitrogen	102	106	101				3.25
	Kjeldahl Nitrogen	106	112	110				1.01
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	100	102				0.849
	NO2NO3-N	100	99.6	98.6				0.943
EPA 365.1 Rev. 2.0	Total-P	104	103	102				1.07
	Total-P	106	103	104				0.984
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	94.7	95.6				0.782
SM 2120 B	Color (true)						6.36	
SM 2320 B-97	Total Alkalinity	101					1.01	
SM 2540 C-97	TDS						1.40	
SM 4500 F-C-97	Fluoride	95.3	94.8	94.8				0.0
SM 5310 B-00	Organic Carbon	95.1	96.7	95.5				0.817

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1987619, 1987620, 1987621, 1987622, 1987623, 1987624
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1987619, 1987620, 1987621, 1987622, 1987623, 1987624
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1987538, 1987539, 1987540, 1987541, 1987542, 1987543
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1987538, 1987539, 1987540, 1987541, 1987542, 1987543
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1987538, 1987539, 1987540, 1987541, 1987542, 1987543
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1987538, 1987539, 1987540, 1987541, 1987542, 1987543
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1987544, 1987545, 1987546, 1987547, 1987548, 1987549
SM 2120 B / E31780	True Color measured at 450 nm	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1987532, 1987533, 1987534, 1987535, 1987536, 1987537

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1987538, 1987539, 1987540, 1987541, 1987542, 1987543

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	04/26/2018			04/26/2018 17:23	William L. Brown IV	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
EPA 200.7 Rev. 4.4	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/27/2018 20:21	Betina Topolski	1987624
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/27/2018 23:33	Betina Topolski	1987619
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/27/2018 23:41	Betina Topolski	1987620
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/28/2018 00:01	Betina Topolski	1987621
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/28/2018 00:08	Betina Topolski	1987622
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/28/2018 00:41	Betina Topolski	1987623
	04/26/2018	05/07/2018 13:19	Allison Taylor	05/08/2018 10:44	Betina Topolski	1987624
EPA 200.8 Rev. 5.4	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/30/2018 19:17	Robert K Palmer	1987624
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/30/2018 22:40	Robert K Palmer	1987619
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/30/2018 22:49	Robert K Palmer	1987620
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/30/2018 23:08	Robert K Palmer	1987621
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/30/2018 23:18	Robert K Palmer	1987622
	04/26/2018	04/26/2018 14:50	Elliott D. Healy	04/30/2018 23:28	Robert K Palmer	1987623
	04/26/2018	05/07/2018 13:19	Allison Taylor	05/09/2018 16:09	Robert K Palmer	1987624
EPA 300.0 Rev. 2.1	04/26/2018			04/28/2018 03:35	Lipi Saha	1987533
	04/26/2018			04/28/2018 05:59	Lipi Saha	1987532
	04/26/2018			04/28/2018 06:11	Lipi Saha	1987534
	04/26/2018			04/28/2018 06:23	Lipi Saha	1987535
	04/26/2018			04/28/2018 06:35	Lipi Saha	1987536
	04/26/2018			04/28/2018 06:47	Lipi Saha	1987537
EPA 350.1 Rev. 2.0	04/26/2018			05/03/2018 13:49	Ping Hua	1987538
	04/26/2018			05/03/2018 13:51	Ping Hua	1987539
	04/26/2018			05/03/2018 13:55	Ping Hua	1987540
	04/26/2018			05/03/2018 14:00	Ping Hua	1987541
	04/26/2018			05/03/2018 14:01	Ping Hua	1987543
	04/26/2018			05/03/2018 14:09	Ping Hua	1987542
EPA 351.2 Rev. 2.0	04/26/2018	04/27/2018 11:00	Adrian Shelby	05/01/2018 08:37	Joseph Suarez	1987542
	04/26/2018	04/27/2018 11:00	Adrian Shelby	05/01/2018 08:38	Joseph Suarez	1987543
	04/26/2018	04/30/2018 15:30	Adrian Shelby	05/01/2018 10:52	Joseph Suarez	1987540
	04/26/2018	04/30/2018 15:30	Adrian Shelby	05/01/2018 10:54	Joseph Suarez	1987541
	04/26/2018	05/02/2018 10:30	Adrian Shelby	05/03/2018 10:03	Joseph Suarez	1987538
	04/26/2018	05/02/2018 10:30	Adrian Shelby	05/03/2018 10:05	Joseph Suarez	1987539
EPA 353.2 Rev. 2.0	04/26/2018			04/30/2018 12:15	Lauren Bottorf	1987538
	04/26/2018			04/30/2018 12:16	Lauren Bottorf	1987539
	04/26/2018			04/30/2018 12:17	Lauren Bottorf	1987540
	04/26/2018			04/30/2018 12:19	Lauren Bottorf	1987541
	04/26/2018			04/30/2018 12:26	Lauren Bottorf	1987542
	04/26/2018			04/30/2018 12:32	Lauren Bottorf	1987543

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	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:35	Beverly Y. Sanders	1987538
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:36	Beverly Y. Sanders	1987539
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:37	Beverly Y. Sanders	1987540
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:38	Beverly Y. Sanders	1987541
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:40	Beverly Y. Sanders	1987543
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:47	Beverly Y. Sanders	1987542
EPA 365.1 Rev. 2.0 dissolved	04/26/2018			04/26/2018 17:50	Megan Treadwell	1987544
	04/26/2018			04/26/2018 18:15	Megan Treadwell	1987546
	04/26/2018			04/26/2018 18:16	Megan Treadwell	1987547
	04/26/2018			04/26/2018 18:17	Megan Treadwell	1987548, 1987549
	04/26/2018			04/26/2018 18:27	Megan Treadwell	1987545
SM 2120 B	04/26/2018			04/26/2018 14:23	Tanya Welborn	1987537
	04/26/2018			04/26/2018 15:13	Tanya Welborn	1987532
	04/26/2018			04/26/2018 15:14	Tanya Welborn	1987533, 1987534
	04/26/2018			04/26/2018 15:15	Tanya Welborn	1987535
	04/26/2018			04/26/2018 15:16	Tanya Welborn	1987536
SM 2320 B-97	04/26/2018			05/07/2018 17:32	Dale L. Simmons	1987532
	04/26/2018			05/07/2018 17:40	Dale L. Simmons	1987533
	04/26/2018			05/07/2018 17:47	Dale L. Simmons	1987534
	04/26/2018			05/07/2018 17:55	Dale L. Simmons	1987535
	04/26/2018			05/07/2018 18:03	Dale L. Simmons	1987536
	04/26/2018			05/07/2018 18:10	Dale L. Simmons	1987537
SM 2540 C-97	04/26/2018			04/27/2018 13:15	William L. Brown IV	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
SM 2540 D-97	04/26/2018			04/27/2018 13:15	William L. Brown IV	1987532, 1987533, 1987534, 1987535, 1987536, 1987537
SM 4500 F-C-97	04/26/2018			05/04/2018 01:14	Dale L. Simmons	1987532
	04/26/2018			05/04/2018 01:25	Dale L. Simmons	1987533
	04/26/2018			05/04/2018 01:59	Dale L. Simmons	1987534
	04/26/2018			05/04/2018 02:09	Dale L. Simmons	1987535
	04/26/2018			05/04/2018 02:19	Dale L. Simmons	1987536
	04/26/2018			05/04/2018 02:32	Dale L. Simmons	1987537
SM 5310 B-00	04/26/2018			05/01/2018 05:18	Megan Treadwell	1987538
	04/26/2018			05/01/2018 05:34	Megan Treadwell	1987539
	04/26/2018			05/01/2018 05:49	Megan Treadwell	1987540
	04/26/2018			05/01/2018 06:04	Megan Treadwell	1987541
	04/26/2018			05/01/2018 06:19	Megan Treadwell	1987542
	04/26/2018			05/01/2018 07:02	Megan Treadwell	1987543