

Chemical Analysis Report

NE-DIST-2017-03-03-01

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

Event Description: **WBID 2460 and 2326A**

Request ID: **RQ-2017-02-27-67**

Customer: **NE-DIST**

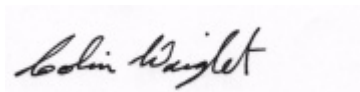
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 30-MAR-2017 09:30

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

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: Goodbys Cr. @ Plaza Gate

Collection Date/Time: 03/02/2017 08:50

Field ID: G2NE054403022017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877629	EPA 180.1 Rev. 2.0	Turbidity	9.8		NTU	P320936	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P321781	
		Sulfate	29		mg SO4/L	P321785	MS
	SM 2120 B	Color (true)	42		PCU	P320935	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P321423	
	SM 2540 C-97	TDS	239		mg/L	P321393	
	SM 2540 D-97	TSS	6	I	mg/L	P321406	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P321427	
1877630	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P321055	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P321032	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P321354	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P321070	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P320954	
1877631	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P320944	
1877638	EPA 200.7 Rev. 4.4	Calcium	54.9		mg/L	P321249	
		Iron	1.91E+03		ug/L	P321249	
		Magnesium	8.68		mg/L	P321249	
		Potassium	2.0		mg/L	P321249	
		Sodium	18.1		mg/L	P321249	
		Zinc	5.0	U	ug/L	P321249	
	EPA 200.8 Rev. 5.4	Arsenic	3.14		ug/L	P321249	
		Cadmium	0.020	U	ug/L	P321249	
		Chromium	0.40	U	ug/L	P321249	
		Copper	0.35	I	ug/L	P321249	
		Lead	0.051	I	ug/L	P321249	
		Nickel	0.35	I	ug/L	P321249	
		Silver	0.010	U	ug/L	P321249	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P320936

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P321249

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321249

Component	Result	Code	Units
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321249

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: P321781

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321785

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321055

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321032

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321354

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321070

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: P320944

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

Reference Method: SM 2120 B
 Batch ID: P320935

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
 Batch ID: P321423

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

Reference Method: SM 2540 C-97
 Batch ID: P321393

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P321406

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P321427

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P320954

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: P321249

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	105		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	101		P	85 - 115
Sodium	102		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: P321249

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	101		P	85 - 115
Copper	101		P	85 - 115
Lead	92.4		P	85 - 115
Nickel	103		P	85 - 115
Silver	96.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321781

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321785

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P321055

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: P321032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P321354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P321070

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P320944

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P321423

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P321427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877139	Calcium	105		P	80 - 120
1877139	Iron	107		P	80 - 120
1877139	Magnesium	105		P	80 - 120
1877139	Potassium	105		P	80 - 120
1877139	Sodium	104		P	80 - 120
1877139	Zinc	101		P	80 - 120
1877187	Calcium	103		P	80 - 120
1877187	Iron	109	107	P/P	80 - 120
1877187	Magnesium	105		P	80 - 120
1877187	Potassium	102		P	80 - 120
1877187	Sodium	103		P	80 - 120
1877187	Zinc	101	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877139	Arsenic	108		P	80 - 120
1877139	Cadmium	104		P	80 - 120
1877139	Chromium	101		P	80 - 120
1877139	Copper	103		P	80 - 120
1877139	Lead	95.1		P	80 - 120
1877139	Nickel	103		P	80 - 120
1877139	Silver	94.4		P	80 - 120
1877187	Arsenic	110	107	P/P	80 - 120
1877187	Cadmium	103	106	P/P	80 - 120
1877187	Chromium	104	102	P/P	80 - 120
1877187	Copper	105	103	P/P	80 - 120
1877187	Lead	97.2	94.9	P/P	80 - 120
1877187	Nickel	104	103	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877187	Silver	97.1	98.1	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877690	Chloride	95.3		P	90 - 110
1877768	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877690	Sulfate	98.1		P	90 - 110
1877768	Sulfate	84.2		F	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877458	Ammonia-N	101	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877630	Kjeldahl Nitrogen	98.6	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877491	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877635	Total-P	98.6	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877631	O-Phosphate-P	95.9	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P321427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877670	Fluoride	100	100	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P320954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877390	Organic Carbon	99.4	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877455	Turbidity	11.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877187	Calcium	0.229	Spike	P	0 - 20
1877187	Iron	1.96	Spike	P	0 - 20
1877187	Magnesium	1.59	Spike	P	0 - 20
1877187	Potassium	0.442	Spike	P	0 - 20
1877187	Sodium	0.0256	Spike	P	0 - 20
1877187	Zinc	0.253	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877187	Arsenic	2.31	Spike	P	0 - 20
1877187	Cadmium	3.42	Spike	P	0 - 20
1877187	Chromium	1.33	Spike	P	0 - 20
1877187	Copper	2.13	Spike	P	0 - 20
1877187	Lead	2.43	Spike	P	0 - 20
1877187	Nickel	1.11	Spike	P	0 - 20
1877187	Silver	0.988	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877690	Chloride	0.340	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877690	Sulfate	0.398	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877458	Ammonia-N	0.519	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877630	Kjeldahl Nitrogen	0.883	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877491	NO2NO3-N	0.355	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877635	Total-P	2.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877631	O-Phosphate-P	0.737	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P320935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877456	Color (true)	6.04	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P321423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877670	Total Alkalinity	0.0681	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P321393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877509	TDS	6.11	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P321427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877670	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877390	Organic Carbon	0.388	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: A74881
Included Lab Sample IDs: 1877629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.5	98.6	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74882
Included Lab Sample IDs: 1877629

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A74887
Included Lab Sample IDs: 1877631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	99.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A74891
Included Lab Sample IDs: 1877630

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74921
Included Lab Sample IDs: 1877630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	96.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74960

Included Lab Sample IDs: 1877630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.3	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74996

Included Lab Sample IDs: 1877630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75018

Included Lab Sample IDs: 1877630

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

Reference Method: SM 2320 B-97

Run ID: A75050

Included Lab Sample IDs: 1877629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75050

Included Lab Sample IDs: 1877629

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A75069

Included Lab Sample IDs: 1877638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	102	P/P	90 - 110
Cadmium	98.5	99.2	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Copper	103	103	P/P	90 - 110
Lead	90.9	91.1	P/P	90 - 110
Nickel	103	104	P/P	90 - 110
Silver	94.1	94.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75083

Included Lab Sample IDs: 1877638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Magnesium	103	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75083

Included Lab Sample IDs: 1877638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	103	103	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Zinc	103	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75123

Included Lab Sample IDs: 1877629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	99.6	98.7	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			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						11.0	
EPA 200.7 Rev. 4.4	Calcium	104	105	103				0.229
	Iron	105	107	109	107			1.96
	Magnesium	103	105	105				1.59
	Potassium	101	105	102				0.442
	Sodium	102	104	103				0.0256
	Zinc	101	101	101	100			0.253
EPA 200.8 Rev. 5.4	Arsenic	102	108	110	107			2.31
	Cadmium	101	104	103	106			3.42
	Chromium	101	101	104	102			1.33
	Copper	101	103	105	103			2.13
	Lead	92.4	95.1	97.2	94.9			2.43
	Nickel	103	103	104	103			1.11
	Silver	96.6	94.4	97.1	98.1			0.988
EPA 300.0 Rev. 2.1	Chloride	99.0	95.3	96.2			0.340	
	Sulfate	93.9	98.1	84.2			0.398	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	99.8				0.519
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	98.6	99.9				0.883
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	108	103	102				0.355
EPA 365.1 Rev. 2.0	Total-P	98.8	98.6	96.2				2.21
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	95.9	96.7				0.737
SM 2120 B	Color (true)						6.04	
SM 2320 B-97	Total Alkalinity	104					0.0681	
SM 2540 C-97	TDS						6.11	
SM 4500 F-C-97	Fluoride	99.0	100	100				0.0
SM 5310 B-00	Organic Carbon	100	99.4	99.0				0.388

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1877629
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1877638
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1877638
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1877629
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1877629
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1877630
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1877630
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1877630
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1877630
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1877631
SM 2120 B / E31780	True Color measured at 450 nm	1877629
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1877629
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1877629
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1877629
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1877629
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1877630

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	03/03/2017			03/03/2017 14:15	Sima Feizi	1877629
EPA 200.7 Rev. 4.4	03/03/2017	03/09/2017	Elliott D. Healy	03/13/2017	Martin Acosta	1877638
EPA 200.8 Rev. 5.4	03/03/2017	03/09/2017	Elliott D. Healy	03/14/2017	Betina Topolski	1877638
EPA 300.0 Rev. 2.1	03/03/2017			03/16/2017	Elisa J Lutz	1877629
EPA 350.1 Rev. 2.0	03/03/2017			03/06/2017	Sofia Elnemr	1877630
EPA 351.2 Rev. 2.0	03/03/2017	03/07/2017	Adrian Shelby	03/08/2017	Joseph Suarez	1877630
EPA 353.2 Rev. 2.0	03/03/2017			03/10/2017	Beverly Y. Sanders	1877630
EPA 365.1 Rev. 2.0	03/03/2017	03/07/2017	Adrian Shelby	03/08/2017	Lipi Saha	1877630
EPA 365.1 Rev. 2.0 dissolved	03/03/2017			03/03/2017 15:22	Julia Storbeck	1877631
SM 2120 B	03/03/2017			03/03/2017 14:03	Julie Michelle Frank	1877629
SM 2320 B-97	03/03/2017			03/11/2017	Dale L. Simmons	1877629
SM 2540 C-97	03/03/2017			03/08/2017	Yijie Li	1877629
SM 2540 D-97	03/03/2017			03/08/2017	Yijie Li	1877629
SM 4500 F-C-97	03/03/2017			03/11/2017	Dale L. Simmons	1877629
SM 5310 B-00	03/03/2017			03/04/2017	Julie Michelle Frank	1877630