Chemical Analysis Report

NE-DIST-2017-03-17-02

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

Event Description: **LSJR SouthWest and LSJR South Boat**
Request ID: **RQ-2017-03-13-11**
Customer: **NE-DIST**
Project ID: **SMP**

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

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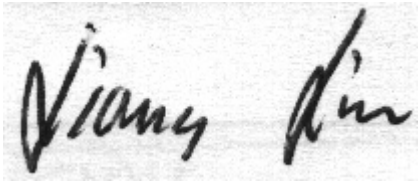
Certified by: Liang Lin, Environmental Administrator

Date Certified: 13-APR-2017 11:34



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: St. Johns River @ Alpine Grove dock **Collection Date/Time: 03/16/2017 13:00**

Field ID: G2NE1129 03162017 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1881025	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P321762	
	EPA 300.0 Rev. 2.1	Chloride	1.9E+03		mg Cl/L	P322279	
		Sulfate	290		mg SO4/L	P322281	
	SM 2120 B	Color (true)	68		PCU	P321752	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P322073	
	SM 2540 C-97	TDS	3.46E+03		mg/L	P322322	
	SM 2540 D-97	TSS	19		mg/L	P322318	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P322079	
1881026	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P321908	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P321850	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.099		mg N/L	P322040	
	EPA 365.1 Rev. 2.0	Total-P	0.079		mg P/L	P321854	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P321796	
1881027	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P321749	
1881029	EPA 200.7 Rev. 4.4	Calcium	78.0		mg/L	P321891	
		Iron	480		ug/L	P321891	
		Magnesium	136		mg/L	P321891	
		Potassium	38		mg/L	P321891	
		Sodium	1.06E+03		mg/L	P321891	
		Zinc	5.0	U	ug/L	P321891	
	EPA 200.8 Rev. 5.4	Arsenic	1.64		ug/L	P321891	
		Cadmium	0.020	U	ug/L	P321891	
		Chromium	0.91	I	ug/L	P321891	
		Copper	1.51		ug/L	P321891	
		Lead	0.75		ug/L	P321891	
		Nickel	0.50	I	ug/L	P321891	
		Silver	0.010	U	ug/L	P321891	

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: P321762

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321891

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: P321891

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: P321891

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: P322279

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322281

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321850

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322040

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321854

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: P321749

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

Reference Method: SM 2120 B
Batch ID: P321752

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322073

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

Reference Method: SM 2540 C-97
Batch ID: P322322

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322318

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322079

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P321796

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: P321891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	107		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	105		P	85 - 115
Sodium	103		P	85 - 115
Zinc	98.8		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	75 - 125
Cadmium	100		P	75 - 125
Chromium	101		P	75 - 125
Copper	102		P	75 - 125
Lead	95.6		P	85 - 115
Nickel	103		P	75 - 125
Silver	98.6		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322279

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322281

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321908

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321850

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322040

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321854

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321749

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P322073

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

Reference Method: SM 4500 F-C-97
Batch ID: P322079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P321796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880817	Calcium	105		P	75 - 125
1880817	Iron	108		P	75 - 125
1880817	Magnesium	109		P	75 - 125
1880817	Potassium	99.5		P	75 - 125
1880817	Sodium	105		P	75 - 125
1880817	Zinc	98.2		P	75 - 125
1881222	Calcium	103		P	80 - 120
1881222	Iron	103	105	P/P	80 - 120
1881222	Magnesium	104		P	80 - 120
1881222	Potassium	96.6	104	P/P	80 - 120
1881222	Sodium	104		P	80 - 120
1881222	Zinc	93.3	95.1	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880817	Arsenic	105		P	75 - 125
1880817	Cadmium	102		P	75 - 125
1880817	Chromium	100		P	75 - 125
1880817	Copper	100		P	75 - 125
1880817	Lead	96.0		P	80 - 120
1880817	Nickel	101		P	75 - 125
1880817	Silver	98.9		P	80 - 120
1881222	Arsenic	104	104	P/P	80 - 120
1881222	Cadmium	102	101	P/P	80 - 120
1881222	Chromium	100	100	P/P	80 - 120
1881222	Copper	98.6	98.6	P/P	80 - 120
1881222	Lead	95.8	96.4	P/P	80 - 120
1881222	Nickel	101	101	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881222	Silver	98.6	100	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881016	Chloride	99.8		P	90 - 110
1881292	Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881016	Sulfate	99.6		P	90 - 110
1881292	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880524	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1880477	Kjeldahl Nitrogen	103	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881509	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879507	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881027	O-Phosphate-P	98.6	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P322079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881033	Fluoride	97.2	98.3	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P321796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881017	Organic Carbon	94.8	94.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P321762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881015	Turbidity	9.33	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P321891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881222	Calcium	4.01	Spike	P	0 - 20
1881222	Iron	2.08	Spike	P	0 - 20
1881222	Magnesium	4.17	Spike	P	0 - 20
1881222	Potassium	6.47	Spike	P	0 - 20
1881222	Sodium	1.95	Spike	P	0 - 20
1881222	Zinc	1.87	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P321891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881222	Arsenic	0.828	Spike	P	0 - 20
1881222	Cadmium	1.07	Spike	P	0 - 20
1881222	Chromium	0.0183	Spike	P	0 - 20
1881222	Copper	0.0185	Spike	P	0 - 20
1881222	Lead	0.618	Spike	P	0 - 20
1881222	Nickel	0.113	Spike	P	0 - 20
1881222	Silver	1.36	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881016	Chloride	0.000520	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881016	Sulfate	0.813	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880524	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880477	Kjeldahl Nitrogen	4.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881509	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879507	Total-P	0.793	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P321749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881027	O-Phosphate-P	1.18	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P321752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881016	Color (true)	1.65	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881033	Total Alkalinity	0.558	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1880961	TDS	3.30	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P322079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881033	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P321796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881017	Organic Carbon	0.318	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 365.1 Rev. 2.0 dissolved
Run ID: A75172
Included Lab Sample IDs: 1881027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	99.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A75173
Included Lab Sample IDs: 1881025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	107	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75180
Included Lab Sample IDs: 1881025

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

Reference Method: SM 5310 B-00
Run ID: A75192
Included Lab Sample IDs: 1881026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75239
Included Lab Sample IDs: 1881026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75245
Included Lab Sample IDs: 1881026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A75289
Included Lab Sample IDs: 1881026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75295
Included Lab Sample IDs: 1881026

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A75309
Included Lab Sample IDs: 1881029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	92.8	93.9	P/P	90 - 110
Silver	95.2	97.7	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A75310
Included Lab Sample IDs: 1881025

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

Reference Method: SM 4500 F-C-97
Run ID: A75310
Included Lab Sample IDs: 1881025

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75396
Included Lab Sample IDs: 1881025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.6	P/P	90 - 110
Sulfate	98.5	93.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75410
Included Lab Sample IDs: 1881029

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75410
Included Lab Sample IDs: 1881029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	104	104	P/P	90 - 110
Magnesium	103	103	P/P	90 - 110
Potassium	101	102	P/P	90 - 110
Sodium	99.6	102	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A75436
Included Lab Sample IDs: 1881029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	101	P/P	90 - 110
Cadmium	99.3	97.4	P/P	90 - 110
Chromium	101	96.8	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Nickel	104	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						9.33	
EPA 200.7 Rev. 4.4	Calcium	103	105	103				4.01
	Iron	107	108	103	105			2.08
	Magnesium	105	109	104				4.17
	Potassium	105	99.5	96.6	104			6.47
	Sodium	103	105	104				1.95
	Zinc	98.8	98.2	93.3	95.1			1.87
EPA 200.8 Rev. 5.4	Arsenic	103	105	104	104			0.828
	Cadmium	100	102	102	101			1.07
	Chromium	101	100	100	100			0.0183
	Copper	102	100	98.6	98.6			0.0185
	Lead	95.6	96.0	95.8	96.4			0.618
	Nickel	103	101	101	101			0.113
	Silver	98.6	98.9	98.6	100			1.36
EPA 300.0 Rev. 2.1	Chloride	101	99.8	97.3			0.0005	
	Sulfate	99.0	99.6	98.4			0.813	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	100	102				1.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	103	98.0				4.09
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	102				0.471
EPA 365.1 Rev. 2.0	Total-P	99.1	106	105				0.793
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	98.6	100				1.18
SM 2120 B	Color (true)						1.65	
SM 2320 B-97	Total Alkalinity	104					0.558	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 2540 C-97	TDS					3.30	
SM 4500 F-C-97	Fluoride	97.4	97.2	98.3			1.00
SM 5310 B-00	Organic Carbon	96.9	94.8	94.4			0.318

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1881025
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1881029
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1881029
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1881025
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1881025
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1881026
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1881026
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1881026
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1881026
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1881027
SM 2120 B / E31780	True Color measured at 450 nm	1881025
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1881025
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1881025
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1881025
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1881025
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1881026

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	03/17/2017			03/17/2017 15:10	Sima Feizi	1881025
EPA 200.7 Rev. 4.4	03/17/2017	03/21/2017	Elliott D. Healy	03/22/2017	Joshua Ayres	1881029
EPA 200.8 Rev. 5.4	03/17/2017	03/21/2017	Elliott D. Healy	03/23/2017	Betina Topolski	1881029
	03/17/2017	03/21/2017	Elliott D. Healy	03/28/2017	Betina Topolski	1881029
EPA 300.0 Rev. 2.1	03/17/2017			03/27/2017	Ping Hua	1881025
EPA 350.1 Rev. 2.0	03/17/2017			03/21/2017	Julie Michelle Frank	1881026
EPA 351.2 Rev. 2.0	03/17/2017	03/21/2017	Adrian Shelby	03/23/2017	Joseph Suarez	1881026
EPA 353.2 Rev. 2.0	03/17/2017			03/23/2017	Beverly Y. Sanders	1881026
EPA 365.1 Rev. 2.0	03/17/2017	03/21/2017	Adrian Shelby	03/21/2017	Lipi Saha	1881026
EPA 365.1 Rev. 2.0 dissolved	03/17/2017			03/17/2017 12:10	Ping Hua	1881027
SM 2120 B	03/17/2017			03/17/2017 14:36	Julie Michelle Frank	1881025
SM 2320 B-97	03/17/2017			03/23/2017	Dale L. Simmons	1881025
SM 2540 C-97	03/17/2017			03/21/2017	Yijie Li	1881025
SM 2540 D-97	03/17/2017			03/21/2017	Yijie Li	1881025
SM 4500 F-C-97	03/17/2017			03/23/2017	Dale L. Simmons	1881025
SM 5310 B-00	03/17/2017			03/18/2017	Julie Michelle Frank	1881026