Chemical Analysis Report

NE-DIST-2019-05-01-01

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

Event Description: **LSJR Coast**
Request ID: **RQ-2019-04-22-09**
Customer: **NE-DIST**
Project ID: **SMP**

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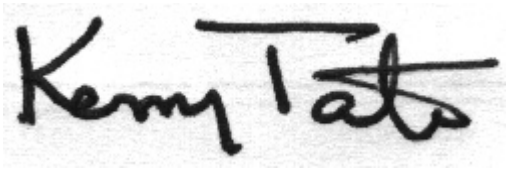
Date Certified: 15-MAY-2019 11:30



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 by the Florida Department of Health Environmental Laboratory Certification Program 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 at Ft. Caroline Dock **Collection Date/Time: 04/30/2019 11:45**

Field ID: G2NE1179 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081980	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P363180	
	EPA 300.0	Bromide	50		mg Br/L	P363643	
	SM 2320 B-97	Total Alkalinity	102		mg CaCO3/L	P363495	
	SM 2540 D-97	TSS	5	I	mg/L	P363456	RPD
	SM 4500 F-C-97	Fluoride	0.90		mg F/L	P363872	
2081981	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P363380	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P363397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P363405	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P363278	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P363289	
2081982	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P363194	
2081985	EPA 200.7 Rev. 4.4	Iron	160	I	ug/L	P363173	
		Manganese	11	I	ug/L	P363173	
		Zinc	15	U	ug/L	P363173	
	EPA 200.8 Rev. 5.4	Aluminum	150	I	ug/L	P363173	
		Antimony	0.20	U	ug/L	P363173	
		Arsenic	2.22		ug/L	P363173	
		Cadmium	0.080	U	ug/L	P363173	
		Chromium	4.0	U	ug/L	P363173	
		Copper	1.6	U	ug/L	P363173	
		Lead	2.0	U	ug/L	P363173	
		Nickel	2.0	U	ug/L	P363173	
		Selenium	2.0	U	ug/L	P363173	
		Silver	0.040	U	ug/L	P363173	
		Thallium	1.0	U	ug/L	P363173	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363180

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363173

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0
Batch ID: P363643

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363380

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363405

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363278

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363194

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

Reference Method: SM 2320 B-97
Batch ID: P363495

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

Reference Method: SM 2540 D-97
Batch ID: P363456

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363289

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: P363173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Manganese	100		P	85 - 115
Zinc	99.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	93.2		P	70 - 130
Arsenic	97.0		P	70 - 130
Cadmium	103		P	85 - 115
Chromium	97.3		P	70 - 130
Copper	95.2		P	70 - 130
Lead	97.2		P	70 - 130
Nickel	96.2		P	70 - 130
Selenium	101		P	85 - 115
Silver	92.7		P	70 - 130
Thallium	98.1		P	70 - 130

Reference Method: EPA 300.0
Batch ID: P363643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363380

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363405

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: P363278

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363194

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

Reference Method: SM 2320 B-97
Batch ID: P363495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P363289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080892	Iron	103	103	P/P	80 - 120
2080892	Manganese	95.0	95.9	P/P	80 - 120
2080892	Zinc	99.5	100	P/P	80 - 120
2081091	Iron	101		P	80 - 120
2081091	Manganese	95.0		P	80 - 120
2081091	Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080892	Aluminum	111	111	P/P	70 - 130
2080892	Antimony	101	95.2	P/P	70 - 130
2080892	Arsenic	109	104	P/P	70 - 130
2080892	Cadmium	99.2	97.6	P/P	70 - 130
2080892	Chromium	96.3	101	P/P	70 - 130
2080892	Copper	98.5	92.9	P/P	70 - 130
2080892	Lead	102	96.1	P/P	70 - 130
2080892	Nickel	98.0	93.5	P/P	70 - 130
2080892	Selenium	107	111	P/P	70 - 130
2080892	Silver	90.4	84.6	P/P	70 - 130
2080892	Thallium	102	96.3	P/P	70 - 130
2081091	Aluminum	106		P	70 - 130
2081091	Antimony	96.4		P	70 - 130
2081091	Arsenic	102		P	70 - 130
2081091	Cadmium	103		P	70 - 130
2081091	Chromium	98.5		P	70 - 130
2081091	Copper	92.4		P	70 - 130
2081091	Lead	98.4		P	70 - 130
2081091	Nickel	92.1		P	70 - 130
2081091	Selenium	114		P	70 - 130
2081091	Silver	87.5		P	70 - 130
2081091	Thallium	97.4		P	70 - 130

Reference Method: EPA 300.0
Batch ID: P363643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082903	Bromide	95.9	94.8	P/P	90 - 110
2082953	Bromide	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081981	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081934	Kjeldahl Nitrogen	103	97.6	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081928	NO2NO3-N	103	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081935	Total-P	97.0	93.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363194

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081982	O-Phosphate-P	98.4	97.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082745	Fluoride	96.6	96.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P363289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081675	Organic Carbon	94.2	93.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082022	Turbidity	2.06	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080892	Iron	0.0690	Spike	P	0 - 20
2080892	Manganese	0.905	Spike	P	0 - 20
2080892	Zinc	0.872	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080892	Aluminum	0.461	Spike	P	0 - 20
2080892	Antimony	6.16	Spike	P	0 - 20
2080892	Arsenic	4.62	Spike	P	0 - 20
2080892	Cadmium	1.58	Spike	P	0 - 20
2080892	Chromium	4.80	Spike	P	0 - 20
2080892	Copper	5.87	Spike	P	0 - 20
2080892	Lead	5.67	Spike	P	0 - 20
2080892	Nickel	4.71	Spike	P	0 - 20
2080892	Selenium	3.75	Spike	P	0 - 20
2080892	Silver	6.68	Spike	P	0 - 20
2080892	Thallium	5.50	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P363643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082903	Bromide	0.937	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081981	Ammonia-N	0.959	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081934	Kjeldahl Nitrogen	5.17	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081928	NO2NO3-N	5.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081935	Total-P	3.91	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081982	O-Phosphate-P	0.484	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082745	Total Alkalinity	0.925	Sample	P	0 - 2.8

Reference Method: SM 2540 D-97
Batch ID: P363456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082745	TSS	17.9	Sample	F	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082745	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081675	Organic Carbon	0.518	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 180.1 Rev. 2.0
Run ID: A91137
Included Lab Sample IDs: 2081980

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A91138
Included Lab Sample IDs: 2081982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	98.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A91169
Included Lab Sample IDs: 2081985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.1	99.1	P/P	90 - 110
Manganese	98.8	98.8	P/P	90 - 110
Zinc	99.2	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A91170
Included Lab Sample IDs: 2081981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	92.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91210
Included Lab Sample IDs: 2081981

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91217
Included Lab Sample IDs: 2081981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A91249
Included Lab Sample IDs: 2081980

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91270
Included Lab Sample IDs: 2081981

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91270
Included Lab Sample IDs: 2081981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91272
Included Lab Sample IDs: 2081981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A91284
Included Lab Sample IDs: 2081985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	94.3	94.4	P/P	90 - 110
Arsenic	92.2	92.5	P/P	90 - 110
Chromium	95.4	95.5	P/P	90 - 110
Copper	90.7	90.6	P/P	90 - 110
Lead	94.6	94.9	P/P	90 - 110
Nickel	90.5	90.5	P/P	90 - 110
Silver	92.4	92.1	P/P	90 - 110
Thallium	92.2	92.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A91286
Included Lab Sample IDs: 2081985

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

Reference Method: EPA 300.0
Run ID: A91304
Included Lab Sample IDs: 2081980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A91334
Included Lab Sample IDs: 2081985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.9	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A91393
Included Lab Sample IDs: 2081985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	98.5	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A91397
Included Lab Sample IDs: 2081980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	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						2.06	
EPA 200.7 Rev. 4.4	Iron	103	103	103	101			0.0690
	Manganese	100	95.0	95.9	95.0			0.905
	Zinc	99.3	99.5	100	100			0.872
EPA 200.8 Rev. 5.4	Aluminum	101	111	111	106			0.461
	Antimony	93.2	101	95.2	96.4			6.16
	Arsenic	97.0	109	104	102			4.62
	Cadmium	103	99.2	97.6	103			1.58
	Chromium	97.3	96.3	101	98.5			4.80
	Copper	95.2	98.5	92.9	92.4			5.87
	Lead	97.2	102	96.1	98.4			5.67
	Nickel	96.2	98.0	93.5	92.1			4.71
	Selenium	101	107	111	114			3.75
	Silver	92.7	90.4	84.6	87.5			6.68
	Thallium	98.1	102	96.3	97.4			5.50
EPA 300.0	Bromide	97.1	95.9	94.8	95.3			0.937
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	103				0.959
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	97.6				5.17
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	110				5.45
EPA 365.1 Rev. 2.0	Total-P	103	97.0	93.0				3.91
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.4	97.8				0.484
SM 2320 B-97	Total Alkalinity	102					0.925	
SM 2540 D-97	TSS						17.9	
SM 4500 F-C-97	Fluoride	96.6	96.6	96.6				0.0
SM 5310 B-00	Organic Carbon	98.6	94.2	93.6				0.518

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2081980
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2081985
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2081985
EPA 300.0 / E31780	Bromide in aqueous matrices	2081980
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2081981
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2081981
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2081981
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2081981
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2081982
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2081980
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2081980
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2081980
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2081981

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/01/2019			05/01/2019 16:13	Adrian Shelby	2081980
EPA 200.7 Rev. 4.4	05/01/2019	05/01/2019 16:30	Elliott D. Healy	05/02/2019 17:59	Betina Topolski	2081985
EPA 200.8 Rev. 5.4	05/01/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 05:52	Martin Acosta	2081985
	05/01/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 10:01	Robert K Palmer	2081985
	05/01/2019	05/01/2019 16:30	Elliott D. Healy	05/08/2019 11:16	Martin Acosta	2081985
	05/01/2019	05/01/2019 16:30	Elliott D. Healy	05/09/2019 23:30	Robert K Palmer	2081985
	05/01/2019	05/01/2019 16:30	Elliott D. Healy	05/13/2019 21:13	Robert K Palmer	2081985
EPA 300.0	05/01/2019			05/08/2019 19:14	Lipi Saha	2081980
EPA 350.1 Rev. 2.0	05/01/2019			05/03/2019 12:08	Ping Hua	2081981
EPA 351.2 Rev. 2.0	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:23	Joseph Suarez	2081981
EPA 353.2 Rev. 2.0	05/01/2019			05/06/2019 09:47	Beverly Y. Sanders	2081981
EPA 365.1 Rev. 2.0	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 17:04	Rosalyn Ballman	2081981
EPA 365.1 Rev. 2.0 dissolved	05/01/2019			05/01/2019 15:28	Jhamieka S. Greenwood	2081982
SM 2320 B-97	05/01/2019			05/07/2019 08:14	Dale L. Simmons	2081980
SM 2540 D-97	05/01/2019			05/03/2019 16:35	Mariam Hanna	2081980
SM 4500 F-C-97	05/01/2019			05/14/2019 07:15	Dale L. Simmons	2081980
SM 5310 B-00	05/01/2019			05/03/2019 06:46	Lauren Lees	2081981