

Chemical Analysis Report

CEN-DIST-2021-01-21-01

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

Event Description: **Long Branch**
Request ID: **RQ-2021-01-18-49**
Customer: **CEN-DIST**
Project ID: **BMAP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 11-FEB-2021 16:52



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, Nutrients and Pesticides.

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: Long Branch @ 0.7 Mi DS of CR 13

Collection Date/Time: 01/20/2021 11:24

Field ID: G2CE0036

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2220423	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P392715	
	EPA 300.0 Rev. 2.1	Chloride	24	A	mg Cl/L	P392789	
		Sulfate	42	A	mg SO4/L	P392790	
		Color (true)	41		PCU	P392710	
	SM 2120 B-2011	Total Alkalinity	74		mg CaCO3/L	P393214	
	SM 2540 C-2011	TDS	210	A	mg/L	P393019	
	SM 2540 D-2011	TSS	2	UA	mg/L	P392979	
	SM 4500 F-C-2011	Fluoride	0.092	I	mg F/L	P392867	
2220424	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P393453	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P393126	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P392815	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P393210	
	SM 5310 B-2011	Organic Carbon	9.7		mg C/L	P392985	
2220425	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P392704	
2220432	EPA 8321B	Sucralose	0.27		ug/L	P392662	
2220433	EPA 200.7 Rev. 4.4	Calcium	46.7		mg/L	P392838	
		Iron	220		ug/L	P392838	
		Magnesium	2.58		mg/L	P392838	
		Potassium	1.4		mg/L	P392838	
		Sodium	14.6		mg/L	P392838	
		Zinc	5.0	U	ug/L	P392838	
		Arsenic	0.62		ug/L	P392838	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P392838	
		Chromium	0.40	U	ug/L	P392838	
		Copper	0.40	U	ug/L	P392838	
		Lead	0.20	U	ug/L	P392838	
		Nickel	0.50	U	ug/L	P392838	
		Silver	0.010	U	ug/L	P392838	

Ref. Method and Comment:

SM 2540 D-2011: 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: P392715

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P392838

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 200.8 Rev. 5.4
Batch ID: P392838

Component	Result	Code	Units
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
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392789

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392790

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393453

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393126

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392815

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393210

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392704

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

Reference Method: EPA 8321B
Batch ID: P392662

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P392710

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P393214

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

Reference Method: SM 2540 C-2011
Batch ID: P393019

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P392979

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P392867

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P392985

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: P392838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	98.2		P	85 - 115
Iron	96.5		P	85 - 115
Magnesium	97.3		P	85 - 115
Potassium	97.7		P	85 - 115
Sodium	105		P	85 - 115
Zinc	95.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P392838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	86.7		P	85 - 115
Chromium	112		P	85 - 115
Copper	102		P	85 - 115
Lead	106		P	85 - 115
Nickel	102		P	85 - 115
Silver	113		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392789

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392790

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393126

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392815

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.0		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393210

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392704

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

Reference Method: EPA 8321B
Batch ID: P392662

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	131		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P392710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P393214

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P392867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P392985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P392838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220401	Calcium	99.4		P	80 - 120
2220401	Iron	102		P	80 - 120
2220401	Magnesium	102		P	80 - 120
2220401	Potassium	101		P	80 - 120
2220401	Sodium	106		P	80 - 120
2220401	Zinc	97.8		P	80 - 120
2220503	Calcium	102	101	P/P	80 - 120
2220503	Iron	100	102	P/P	80 - 120
2220503	Magnesium	101	102	P/P	80 - 120
2220503	Potassium	98.7	97.8	P/P	80 - 120
2220503	Sodium	102	101	P/P	80 - 120
2220503	Zinc	98.0	96.7	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P392838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220401	Arsenic	102		P	80 - 120
2220401	Cadmium	89.1		P	80 - 120
2220401	Chromium	104		P	80 - 120
2220401	Copper	95.5		P	80 - 120
2220401	Lead	105		P	80 - 120
2220401	Nickel	92.6		P	80 - 120
2220401	Silver	111		P	80 - 120
2220503	Arsenic	103	104	P/P	80 - 120
2220503	Cadmium	90.2	91.2	P/P	80 - 120
2220503	Chromium	110	114	P/P	80 - 120
2220503	Copper	101	103	P/P	80 - 120
2220503	Lead	107	109	P/P	80 - 120
2220503	Nickel	102	103	P/P	80 - 120
2220503	Silver	112	114	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P392789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220281	Chloride	102		P	90 - 110
2220423	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P392790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220281	Sulfate	103		P	90 - 110
2220423	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P393453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220485	Ammonia-N	98.0	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220380	Kjeldahl Nitrogen	105	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220373	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220362	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220486	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P392662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220513	Sucralose	126	142	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P392867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220650	Fluoride	98.3	99.5	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P392985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220380	Organic Carbon	100	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P392715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220312	Turbidity	0.341	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P392838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220503	Calcium	0.103	Spike	P	0 - 20
2220503	Iron	1.48	Spike	P	0 - 20
2220503	Magnesium	0.644	Spike	P	0 - 20
2220503	Potassium	0.728	Spike	P	0 - 20
2220503	Sodium	0.840	Spike	P	0 - 20
2220503	Zinc	1.32	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P392838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220503	Arsenic	0.633	Spike	P	0 - 20
2220503	Cadmium	1.10	Spike	P	0 - 20
2220503	Chromium	4.00	Spike	P	0 - 20
2220503	Copper	1.78	Spike	P	0 - 20
2220503	Lead	1.28	Spike	P	0 - 20
2220503	Nickel	1.02	Spike	P	0 - 20
2220503	Silver	1.86	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220423	Chloride	0.819	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220423	Sulfate	1.08	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220485	Ammonia-N	1.74	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220380	Kjeldahl Nitrogen	3.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P392815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220373	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220362	Total-P	1.77	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P392704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220486	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P392662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220513	Sucralose	7.83	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P392710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220321	Color (true)	1.31	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P393214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220650	Total Alkalinity	1.41	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P393019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220423	TDS	1.90	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P392867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220650	Fluoride	0.927	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P392985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220380	Organic Carbon	0.680	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2220432
Field Sample ID: G2CE0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	109	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103154

Included Lab Sample IDs: 2220423

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103162

Included Lab Sample IDs: 2220425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.1	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A103163

Included Lab Sample IDs: 2220423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	100	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103165

Included Lab Sample IDs: 2220423

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

Reference Method: EPA 8321B

Run ID: A103192

Included Lab Sample IDs: 2220432

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	119	119	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103210

Included Lab Sample IDs: 2220424

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

Reference Method: SM 4500 F-C-2011

Run ID: A103225

Included Lab Sample IDs: 2220423

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103253

Included Lab Sample IDs: 2220433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	95.0	94.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103253

Included Lab Sample IDs: 2220433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	93.8	94.2	P/P	90 - 110
Magnesium	92.7	93.3	P/P	90 - 110
Potassium	92.5	94.4	P/P	90 - 110
Sodium	96.2	96.5	P/P	90 - 110
Zinc	96.8	97.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A103265

Included Lab Sample IDs: 2220424

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103333

Included Lab Sample IDs: 2220433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.4	99.2	P/P	90 - 110
Chromium	109	110	P/P	90 - 110
Copper	98.3	97.2	P/P	90 - 110
Lead	103	103	P/P	90 - 110
Nickel	98.0	97.4	P/P	90 - 110
Silver	107	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103347

Included Lab Sample IDs: 2220424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103351

Included Lab Sample IDs: 2220433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	90.0	90.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A103352

Included Lab Sample IDs: 2220423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.3	93.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103391

Included Lab Sample IDs: 2220424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103391

Included Lab Sample IDs: 2220424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103454

Included Lab Sample IDs: 2220424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.341	
EPA 200.7 Rev. 4.4	Calcium	98.2	99.4	102	101		0.103
	Iron	96.5	102	100	102		1.48
	Magnesium	97.3	102	101	102		0.644
	Potassium	97.7	101	98.7	97.8		0.728
	Sodium	105	106	102	101		0.840
	Zinc	95.4	97.8	98.0	96.7		1.32
EPA 200.8 Rev. 5.4	Arsenic	105	103	104	102		0.633
	Cadmium	86.7	90.2	91.2	89.1		1.10
	Chromium	112	110	114	104		4.00
	Copper	102	101	103	95.5		1.78
	Lead	106	107	109	105		1.28
	Nickel	102	102	103	92.6		1.02
	Silver	113	112	114	111		1.86
EPA 300.0 Rev. 2.1	Chloride	101	102	102		0.819	
	Sulfate	103	102	103		1.08	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.0	100			1.74
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	105	109			3.48
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	96.0	97.5	97.0			0.489
EPA 365.1 Rev. 2.0	Total-P	101	105	103			1.77
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	101	101			0.0
EPA 8321B	Sucralose	131	126	142			7.83
SM 2120 B-2011	Color (true)	99.5				1.31	
SM 2320 B-2011	Total Alkalinity	97.1				1.41	
SM 2540 C-2011	TDS					1.90	
SM 4500 F-C-2011	Fluoride	98.6	98.3	99.5			0.927
SM 5310 B-2011	Organic Carbon	99.2	100	99.2			0.680

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2220423
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2220433
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2220433
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2220423
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2220423
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2220424
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2220424
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2220424
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2220424
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2220425
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2220432
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2220423
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2220423
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2220423
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2220423
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2220423
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2220424

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	01/21/2021			01/21/2021 15:02	Yen Ta	2220423
EPA 200.7 Rev. 4.4	01/21/2021	01/25/2021 15:35	Elliott D. Healy	01/26/2021 19:03	Betina Topolski	2220433
EPA 200.8 Rev. 5.4	01/21/2021	01/25/2021 15:35	Elliott D. Healy	01/29/2021 17:27	Alexander Thompson	2220433
	01/21/2021	01/25/2021 15:35	Elliott D. Healy	02/01/2021 16:20	Alexander Thompson	2220433
EPA 300.0 Rev. 2.1	01/21/2021			01/22/2021 16:08	Lipi Saha	2220423
EPA 350.1 Rev. 2.0	01/21/2021			02/05/2021 16:49	Ping Hua	2220424
EPA 351.2 Rev. 2.0	01/21/2021	01/29/2021 12:30	Yen Ta	02/01/2021 15:47	Julia Storbeck	2220424
EPA 353.2 Rev. 2.0	01/21/2021			01/25/2021 10:28	Beverly Y. Sanders	2220424
EPA 365.1 Rev. 2.0	01/21/2021	02/02/2021 13:00	Lipi Saha	02/03/2021 13:03	Shengyu Wang	2220424
EPA 365.1 Rev. 2.0 dissolved	01/21/2021			01/21/2021 14:59	Blanca Fach	2220425
EPA 8321B	01/21/2021	01/21/2021 15:00	Rebecca Ware	01/21/2021 22:04	Rebecca Ware	2220432
SM 2120 B-2011	01/21/2021			01/21/2021 16:07	Benjamin T. Nordmann	2220423
SM 2320 B-2011	01/21/2021			01/29/2021 19:51	Dale L. Simmons	2220423
SM 2540 C-2011	01/21/2021			01/22/2021 15:16	Yijie Li	2220423
SM 2540 D-2011	01/21/2021			01/22/2021 15:16	Yijie Li	2220423
SM 4500 F-C-2011	01/21/2021			01/23/2021 02:29	Dale L. Simmons	2220423
SM 5310 B-2011	01/21/2021			01/25/2021 22:47	Madeline Gruver	2220424