

Chemical Analysis Report

CEN-DIST-2021-09-29-04

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-2021-08-02-51**
Customer: **CEN-DIST**
Project ID: **BMAP**

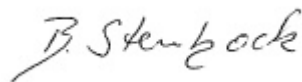
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Report Comment: The BOD sample 2279270 was received at Eurofins TestAmerica Tampa 09/29/2021 at 09:00.

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

Date Certified: 22-OCT-2021 17:57



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: 09/28/2021 10:05

Field ID: G2CE0036

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2279265	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P404371	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P404494	
		Sulfate	18		mg SO4/L	P404497	
	SM 2120 B-2011	Color (true)	320		PCU	P404379	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P404567	
	SM 2540 C-2011	TDS	151	A	mg/L	P404767	
	SM 2540 D-2011	TSS	5	IA	mg/L	P404759	
	SM 4500 F-C-2011	Fluoride	0.066	I	mg F/L	P404571	
2279266	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P404599	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P404510	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P404447	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P404464	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P404492	
2279267	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048		mg P/L	P404367	
2279271	EPA 8321B	Sucralose	0.18		ug/L	P404276	
2279272	EPA 200.7 Rev. 4.4	Calcium	26.2		mg/L	P404542	
		Iron	880		ug/L	P404542	
		Magnesium	1.93		mg/L	P404542	
		Potassium	1.5		mg/L	P404542	
		Sodium	12.4		mg/L	P404542	
		Zinc	7.7	I	ug/L	P404542	
		Arsenic	0.97		ug/L	P404542	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P404542	
		Chromium	0.57	I	ug/L	P404542	
		Copper	0.56	I	ug/L	P404542	
		Lead	0.68		ug/L	P404542	
		Nickel	0.50	U	ug/L	P404542	
		Silver	0.010	U	ug/L	P404542	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404371

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404542

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: P404542

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: P404494

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404497

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404599

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404510

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: P404447

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

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

Reference Method: EPA 8321B
Batch ID: P404276

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P404379

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P404567

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

Reference Method: SM 2540 C-2011
Batch ID: P404767

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404759

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

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: P404492

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: P404542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	108		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	98.2		P	85 - 115
Sodium	103		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	96.9		P	85 - 115
Copper	98.3		P	85 - 115
Lead	96.6		P	85 - 115
Nickel	98.4		P	85 - 115
Silver	97.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404494

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404497

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	107		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404599

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404447

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

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

Reference Method: EPA 8321B
Batch ID: P404276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	66.8		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P404379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P404567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P404492

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P404542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279028	Calcium	103		P	80 - 120
2279028	Iron	108		P	80 - 120
2279028	Magnesium	108		P	80 - 120
2279028	Potassium	98.9		P	80 - 120
2279028	Sodium	102		P	80 - 120
2279028	Zinc	106		P	80 - 120
2279286	Calcium	105	101	P/P	80 - 120
2279286	Iron	108	105	P/P	80 - 120
2279286	Magnesium	107	104	P/P	80 - 120
2279286	Potassium	103	102	P/P	80 - 120
2279286	Sodium	102	97.5	P/P	80 - 120
2279286	Zinc	105	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P404542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279028	Arsenic	104		P	80 - 120
2279028	Cadmium	104		P	80 - 120
2279028	Chromium	100		P	80 - 120
2279028	Copper	100		P	80 - 120
2279028	Lead	101		P	80 - 120
2279028	Nickel	99.4		P	80 - 120
2279028	Silver	97.7		P	80 - 120
2279286	Arsenic	99.9	102	P/P	80 - 120
2279286	Cadmium	101	101	P/P	80 - 120
2279286	Chromium	98.0	100	P/P	80 - 120
2279286	Copper	97.2	99.3	P/P	80 - 120
2279286	Lead	98.5	100	P/P	80 - 120
2279286	Nickel	95.3	96.6	P/P	80 - 120
2279286	Silver	96.9	98.1	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P404494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279119	Chloride	108		P	90 - 110
2279279	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P404497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279119	Sulfate	102		P	90 - 110
2279279	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P404599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279193	Ammonia-N	98.2	97.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279161	Kjeldahl Nitrogen	95.2	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279309	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279281	O-Phosphate-P	99.5	99.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P404276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278459	Sucralose	77.1	76.4	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279388	Fluoride	98.9	96.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279277	Organic Carbon	96.0	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279231	Turbidity	4.03	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279286	Calcium	2.37	Spike	P	0 - 20
2279286	Iron	2.84	Spike	P	0 - 20
2279286	Magnesium	2.57	Spike	P	0 - 20
2279286	Potassium	1.04	Spike	P	0 - 20
2279286	Sodium	3.26	Spike	P	0 - 20
2279286	Zinc	3.05	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279286	Arsenic	1.55	Spike	P	0 - 20
2279286	Cadmium	0.483	Spike	P	0 - 20
2279286	Chromium	2.31	Spike	P	0 - 20
2279286	Copper	2.15	Spike	P	0 - 20
2279286	Lead	1.65	Spike	P	0 - 20
2279286	Nickel	1.34	Spike	P	0 - 20
2279286	Silver	1.24	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279119	Chloride	0.722	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279119	Sulfate	0.588	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279193	Ammonia-N	0.772	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279161	Kjeldahl Nitrogen	1.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279309	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279242	Total-P	0.568	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279281	O-Phosphate-P	0.401	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P404276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278459	Sucralose	0.911	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P404379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279120	Color (true)	1.70	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P404567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279388	Total Alkalinity	0.705	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P404767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279265	TDS	5.30	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279388	Fluoride	1.38	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279277	Organic Carbon	0.285	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2279271
Field Sample ID: G2CE0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Endothall-d6	80.0	P	30 - 160
EPA 8321B	Sucralose-d6	78.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108064

Included Lab Sample IDs: 2279267

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108065

Included Lab Sample IDs: 2279265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A108067

Included Lab Sample IDs: 2279265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108099

Included Lab Sample IDs: 2279266

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

Reference Method: EPA 8321B

Run ID: A108117

Included Lab Sample IDs: 2279271

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	82.6	83.4	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A108118

Included Lab Sample IDs: 2279265

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

Reference Method: SM 5310 B-2011

Run ID: A108119

Included Lab Sample IDs: 2279266

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108133

Included Lab Sample IDs: 2279266

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011
 Run ID: A108145
 Included Lab Sample IDs: 2279265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
 Run ID: A108145
 Included Lab Sample IDs: 2279265

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A108153
 Included Lab Sample IDs: 2279266

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A108176
 Included Lab Sample IDs: 2279266

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	97.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A108188
 Included Lab Sample IDs: 2279272

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	103	P/P	90 - 110
Cadmium	102	105	P/P	90 - 110
Chromium	96.9	99.5	P/P	90 - 110
Copper	98.1	97.3	P/P	90 - 110
Lead	96.4	98.1	P/P	90 - 110
Nickel	97.3	96.4	P/P	90 - 110
Silver	97.0	99.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
 Run ID: A108189
 Included Lab Sample IDs: 2279272

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	97.6	97.3	P/P	90 - 110
Sodium	100	100	P/P	90 - 110
Zinc	101	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.03	
EPA 200.7 Rev. 4.4	Calcium	104	103	105	101		2.37
	Iron	108	108	108	105		2.84
	Magnesium	107	108	107	104		2.57
	Potassium	98.2	98.9	103	102		1.04
	Sodium	103	102	102	97.5		3.26
	Zinc	104	106	105	102		3.05
EPA 200.8 Rev. 5.4	Arsenic	102	104	99.9	102		1.55
	Cadmium	100	104	101	101		0.483
	Chromium	96.9	100	98.0	100		2.31
	Copper	98.3	100	97.2	99.3		2.15
	Lead	96.6	101	98.5	100		1.65
	Nickel	98.4	99.4	95.3	96.6		1.34
	Silver	97.1	97.7	96.9	98.1		1.24
EPA 300.0 Rev. 2.1	Chloride	104	108	106		0.722	
	Sulfate	107	102	108		0.588	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	98.2	97.4			0.772
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.5	95.2	97.4			1.75
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.491
EPA 365.1 Rev. 2.0	Total-P	107					0.568
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.5	99.9			0.401
EPA 8321B	Sucralose	66.8	77.1	76.4			0.911
SM 2120 B-2011	Color (true)	99.2				1.70	
SM 2320 B-2011	Total Alkalinity	98.7				0.705	
SM 2540 C-2011	TDS					5.30	
SM 4500 F-C-2011	Fluoride	100	98.9	96.8			1.38
SM 5310 B-2011	Organic Carbon	96.8	96.0	96.4			0.285

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2279265
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2279272
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2279272
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2279265
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2279265
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2279266
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2279266
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2279266
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2279266
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2279267
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2279271
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2279265
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2279265
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2279265
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2279265
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2279265
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2279266

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	09/29/2021			09/29/2021 16:38	Khloe J Berg	2279265
EPA 200.7 Rev. 4.4	09/29/2021	10/05/2021 11:00	Emily M Philpot	10/06/2021 16:57	Josef B Mick	2279272
EPA 200.8 Rev. 5.4	09/29/2021	10/05/2021 11:00	Emily M Philpot	10/06/2021 23:56	Alexander Thompson	2279272
EPA 300.0 Rev. 2.1	09/29/2021			10/02/2021 04:59	Lipi Saha	2279265
EPA 350.1 Rev. 2.0	09/29/2021			10/05/2021 15:10	Ping Hua	2279266
EPA 351.2 Rev. 2.0	09/29/2021	10/04/2021 13:50	Benjamin T. Nordmann	10/06/2021 09:41	Alexandra J Mattheus	2279266
EPA 353.2 Rev. 2.0	09/29/2021			10/01/2021 10:49	Beverly Y. Sanders	2279266
EPA 365.1 Rev. 2.0	09/29/2021	10/01/2021 14:15	Simonne.V. Calhoun	10/04/2021 14:31	Lipi Saha	2279266
EPA 365.1 Rev. 2.0 dissolved	09/29/2021			09/29/2021 15:35	James L Waggerby	2279267
EPA 8321B	09/29/2021	09/30/2021 13:00	Juyoung Kim	10/01/2021 14:33	Manjita Shrestha	2279271
SM 2120 B-2011	09/29/2021			09/29/2021 18:11	Benjamin T. Nordmann	2279265
SM 2320 B-2011	09/29/2021			10/02/2021 08:07	Dale L. Simmons	2279265
SM 2540 C-2011	09/29/2021			09/30/2021 15:26	Yijie Li	2279265
SM 2540 D-2011	09/29/2021			09/30/2021 15:26	Yijie Li	2279265
SM 4500 F-C-2011	09/29/2021			10/02/2021 08:07	Dale L. Simmons	2279265
SM 5310 B-2011	09/29/2021			10/02/2021 05:21	Madeline Gruver	2279266