

Chemical Analysis Report

CEN-DIST-2022-08-09-02

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

Event Description: **BMAP - Sweetwater, Salt and Long**
Request ID: **RQ-2022-07-18-27**
Customer: **CEN-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Matthew Bearden

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-AUG-2022 10:04

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, 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: 08/08/2022 12:34

Field ID: G2CE0036

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2347269	DEP SOP: NU-094-1	Color (true)	140		PCU	P417851	
	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P417855	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P418210	
		Sulfate	34		mg SO4/L	P418213	
	SM 2320 B-2011	Total Alkalinity	65		mg CaCO3/L	P418286	
	SM 2540 C-2011	TDS	195		mg/L	P418253	
	SM 2540 D-2011	TSS	2	U	mg/L	P418125	
	SM 4500-F- C-2011	Fluoride	0.092	I	mg F/L	P418593	
2347270	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P418055	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P418077	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P417963	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P417949	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P418224	
2347271	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P417849	
2347275	EPA 8321B	Sucralose	0.23		ug/L	P417828	
2347276	EPA 200.7 Rev. 4.4	Calcium	39.4		mg/L	P417935	
		Iron	330		ug/L	P417935	
		Magnesium	2.19		mg/L	P417935	
		Potassium	1.1	I	mg/L	P417935	
	EPA 200.8 Rev. 5.4	Sodium	13.4		mg/L	P417935	
		Zinc	5.0	U	ug/L	P417935	
		Arsenic	0.88		ug/L	P417935	
		Cadmium	0.020	U	ug/L	P417935	
		Chromium	0.40	U	ug/L	P417935	
		Copper	0.40	U	ug/L	P417935	
		Lead	0.24	I	ug/L	P417935	
		Nickel	0.50	U	ug/L	P417935	
		Silver	0.010	U	ug/L	P417935	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P417851

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417855

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417935

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: P417935

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: P418210

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418213

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418055

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418077

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417963

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417949

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417849

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

Reference Method: EPA 8321B
Batch ID: P417828

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-2011
Batch ID: P418286

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

Reference Method: SM 2540 C-2011
Batch ID: P418253

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P418125

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P418593

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: P418224

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P417851

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.5		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	107		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	106		P	85 - 115
Sodium	105		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	101		P	85 - 115
Copper	99.4		P	85 - 115
Lead	95.0		P	85 - 115
Nickel	101		P	85 - 115
Silver	98.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418210

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418213

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418077

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417963

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417949

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417849

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

Reference Method: EPA 8321B
Batch ID: P417828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	110		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P418286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P418593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.7		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P418224

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P417935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347436	Calcium	104		P	80 - 120
2347436	Iron	107	107	P/P	80 - 120
2347436	Magnesium	107	106	P/P	80 - 120
2347436	Potassium	105	107	P/P	80 - 120
2347436	Sodium	103	105	P/P	80 - 120
2347436	Zinc	101	103	P/P	80 - 120
2347500	Calcium	106		P	80 - 120
2347500	Iron	106		P	80 - 120
2347500	Magnesium	106		P	80 - 120
2347500	Potassium	110		P	80 - 120
2347500	Sodium	103		P	80 - 120
2347500	Zinc	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P417935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347436	Arsenic	99.5	101	P/P	80 - 120
2347436	Cadmium	96.8	99.4	P/P	80 - 120
2347436	Chromium	101	102	P/P	80 - 120
2347436	Copper	99.4	101	P/P	80 - 120
2347436	Lead	95.7	95.6	P/P	80 - 120
2347436	Nickel	100	99.5	P/P	80 - 120
2347436	Silver	98.1	98.5	P/P	80 - 120
2347500	Arsenic	99.6		P	80 - 120
2347500	Cadmium	100		P	80 - 120
2347500	Chromium	100		P	80 - 120
2347500	Copper	97.8		P	80 - 120
2347500	Lead	96.3		P	80 - 120
2347500	Nickel	97.7		P	80 - 120
2347500	Silver	99.9		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P418210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347243	Chloride	99.5		P	90 - 110
2347333	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P418213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347243	Sulfate	98.9		P	90 - 110
2347333	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P418055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347231	Ammonia-N	98.4	99.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347439	NO2NO3-N	95.5	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347211	Total-P	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347247	O-Phosphate-P	98.8	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P417828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347237	Sucralose	94.8	94.2	P/P	40 - 150

Reference Method: SM 4500-F- C-2011
Batch ID: P418593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347762	Fluoride	97.2	98.3	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P418224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347281	Organic Carbon	97.8	98.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P417851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347243	Color (true)	1.89	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347244	Turbidity	4.40	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347436	Calcium	0.527	Spike	P	0 - 20
2347436	Iron	0.288	Spike	P	0 - 20
2347436	Magnesium	0.764	Spike	P	0 - 20
2347436	Potassium	1.21	Spike	P	0 - 20
2347436	Sodium	0.856	Spike	P	0 - 20
2347436	Zinc	1.78	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347436	Arsenic	1.56	Spike	P	0 - 20
2347436	Cadmium	2.65	Spike	P	0 - 20
2347436	Chromium	1.34	Spike	P	0 - 20
2347436	Copper	1.26	Spike	P	0 - 20
2347436	Lead	0.0303	Spike	P	0 - 20
2347436	Nickel	0.445	Spike	P	0 - 20
2347436	Silver	0.460	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347243	Chloride	1.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347243	Sulfate	0.284	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347231	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347252	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347439	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347211	Total-P	1.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347247	O-Phosphate-P	1.61	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P417828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347237	Sucralose	0.684	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P418286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347814	Total Alkalinity	0.447	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P418253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347243	TDS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P418593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347762	Fluoride	1.01	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P418224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347281	Organic Carbon	0.340	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2347275
Field Sample ID: G2CE0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	93.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A113989

Included Lab Sample IDs: 2347271

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

Reference Method: DEP SOP: NU-094-1

Run ID: A113991

Included Lab Sample IDs: 2347269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113992

Included Lab Sample IDs: 2347269

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A114023

Included Lab Sample IDs: 2347270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	97.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A114027

Included Lab Sample IDs: 2347275

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	95.4	95.6	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A114047

Included Lab Sample IDs: 2347276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	103	P/P	90 - 110
Cadmium	101	105	P/P	90 - 110
Chromium	102	104	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	93.8	94.6	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Silver	97.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114058

Included Lab Sample IDs: 2347270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.5	93.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114064

Included Lab Sample IDs: 2347270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	97.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A114098

Included Lab Sample IDs: 2347276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	99.9	P/P	95 - 105
Iron	101	100	P/P	95 - 105
Magnesium	100	100	P/P	95 - 105
Potassium	100	102	P/P	95 - 105
Sodium	97.7	100	P/P	95 - 105
Zinc	101	102	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114137

Included Lab Sample IDs: 2347270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114142

Included Lab Sample IDs: 2347269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.8	P/P	90 - 110
Sulfate	102	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A114152

Included Lab Sample IDs: 2347270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A114177

Included Lab Sample IDs: 2347269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	97.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A114295

Included Lab Sample IDs: 2347269

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

Quality Assurance Report

Calibration Verification

* 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				
DEP SOP: NU-094-1	Color (true)	103				1.89	
EPA 180.1 Rev. 2.0	Turbidity	96.5				4.40	
EPA 200.7 Rev. 4.4	Calcium	101	104	106			0.527
	Iron	107	107	107	106		0.288
	Magnesium	107	107	106	106		0.764
	Potassium	106	105	107	110		1.21
	Sodium	105	103	105	103		0.856
	Zinc	106	101	103	105		1.78
EPA 200.8 Rev. 5.4	Arsenic	101	99.5	101	99.6		1.56
	Cadmium	98.2	96.8	99.4	100		2.65
	Chromium	101	101	102	100		1.34
	Copper	99.4	99.4	101	97.8		1.26
	Lead	95.0	95.7	95.6	96.3		0.0303
	Nickel	101	100	99.5	97.7		0.445
	Silver	98.9	98.1	98.5	99.9		0.460
EPA 300.0 Rev. 2.1	Chloride	102	99.5	99.1		1.15	
	Sulfate	101	98.9	98.7		0.284	
EPA 350.1 Rev. 2.0	Ammonia-N	95.0	98.4	99.6			1.06
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106					1.48
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	95.5	95.5			0.0
EPA 365.1 Rev. 2.0	Total-P	103	107	106			1.34
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	98.8	100			1.61
EPA 8321B	Sucralose	110	94.8	94.2			0.684
SM 2320 B-2011	Total Alkalinity	99.4				0.447	
SM 2540 C-2011	TDS					0.0	
SM 4500-F- C-2011	Fluoride	99.7	97.2	98.3			1.01
SM 5310 B-2011	Organic Carbon	95.2	97.8	98.3			0.340

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2347269
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2347269
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2347276
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2347276
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2347269
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2347269
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2347270
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2347270
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2347270
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2347270
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2347271
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2347275
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2347269
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2347269
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2347269
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2347269
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2347270

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	08/09/2022			08/09/2022 15:39	Anna M. Plaviak	2347269
EPA 180.1 Rev. 2.0	08/09/2022			08/09/2022 14:41	Khloe J Berg	2347269
EPA 200.7 Rev. 4.4	08/09/2022	08/11/2022 09:36	Mackenzie Hunt	08/11/2022 18:18	McKinley C Carter	2347276
EPA 200.8 Rev. 5.4	08/09/2022	08/11/2022 09:36	Mackenzie Hunt	08/11/2022 16:32	Alexander Thompson	2347276
EPA 300.0 Rev. 2.1	08/09/2022			08/16/2022 21:01	Anna M. Plaviak	2347269
EPA 350.1 Rev. 2.0	08/09/2022			08/12/2022 13:16	Judith K. Clark	2347270
EPA 351.2 Rev. 2.0	08/09/2022	08/15/2022 14:45	Simonne.V. Calhoun	08/16/2022 15:20	Alexandra J Mattheus	2347270
EPA 353.2 Rev. 2.0	08/09/2022			08/11/2022 09:37	Beverly Y. Sanders	2347270
EPA 365.1 Rev. 2.0	08/09/2022	08/11/2022 09:30	Simonne.V. Calhoun	08/12/2022 10:59	James L Waggerby	2347270
EPA 365.1 Rev. 2.0 dissolved	08/09/2022			08/09/2022 15:19	Elise M. Gillis	2347271
EPA 8321B	08/09/2022	08/10/2022 12:00	Umesh Chiluwal	08/11/2022 08:56	Umesh Chiluwal	2347275
SM 2320 B-2011	08/09/2022			08/16/2022 22:54	Adam P Silver	2347269
SM 2540 C-2011	08/09/2022			08/12/2022 14:14	Ping Hua	2347269
SM 2540 D-2011	08/09/2022			08/12/2022 14:14	Ping Hua	2347269
SM 4500-F- C-2011	08/09/2022			08/24/2022 00:11	Dale L. Simmons	2347269
SM 5310 B-2011	08/09/2022			08/15/2022 20:58	Khloe J Berg	2347270