

Chemical Analysis Report

CEN-DIST-2022-09-27-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

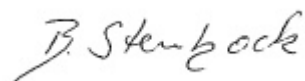
Event Description: **Hidden Buggs**
Request ID: **RQ-2022-10-17-23**
Customer: **CEN-DIST**
Project ID: **SMP**

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

Date Certified: 18-OCT-2022 12:03



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 group are included in this report: 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: Bugg Spring @ Vent

Collection Date/Time: 09/26/2022 10:50

Field ID: G1CE0109

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359742	DEP SOP: NU-094-1	Color (true)	4.1	I	PCU	P420179	
	EPA 180.1 Rev. 2.0	Turbidity	0.55	I	NTU	P420184	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P420332	
		Sulfate	10		mg SO4/L	P420335	
	SM 2320 B-2011	Total Alkalinity	141		mg CaCO3/L	P420552	
	SM 2540 C-2011	TDS	174		mg/L	P420667	
	SM 2540 D-2011	TSS	2	I	mg/L	P420672	
	SM 4500-F- C-2011	Fluoride	0.055	I	mg F/L	P420555	
2359744	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P420590	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P420205	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P420323	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P420288	
	SM 5310 B-2011	Organic Carbon	1.5		mg C/L	P420538	

Ref. Method and Comment:

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

Sample Location: Hidden Lake @ Center

Collection Date/Time: 09/26/2022 11:40

Field ID: G4CE0158

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359743	DEP SOP: NU-094-1	Color (true)	68		PCU	P420179	
	EPA 180.1 Rev. 2.0	Turbidity	3.4	A	NTU	P420184	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P420634	
		Sulfate	0.40	I	mg SO4/L	P420638	
	SM 2320 B-2011	Total Alkalinity	120		mg CaCO3/L	P420552	
	SM 2540 C-2011	TDS	203	A	mg/L	P420667	
	SM 2540 D-2011	TSS	3	IA	mg/L	P420672	
	SM 4500-F- C-2011	Fluoride	0.16		mg F/L	P420555	
2359745	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P420516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P420273	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420500	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P420288	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P420538	

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: P420179

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420184

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420634

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420638

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420516

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420205

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420273

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420323

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420500

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420288

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

Reference Method: SM 2320 B-2011
Batch ID: P420552

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

Reference Method: SM 2540 C-2011
Batch ID: P420667

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P420672

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P420555

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P420538

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: P420179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420184

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420634

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420638

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420516

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420205

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.6		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420273

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420323

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420500

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: P420288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P420552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P420555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420538

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 300.0 Rev. 2.1
Batch ID: P420332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359639	Chloride	99.3		P	90 - 110
2359640	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359639	Sulfate	96.6		P	90 - 110
2359640	Sulfate	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359779	Chloride	96.0		P	90 - 110
2359913	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359779	Sulfate	98.3		P	90 - 110
2359913	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359644	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359744	Ammonia-N	95.6	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359459	Kjeldahl Nitrogen	98.7	94.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359721	NO2NO3-N	93.0	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
---------------	-----------	---------	---------	-----------	----------------

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359745	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359744	Total-P	110	108	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P420555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2360064	Fluoride	99.0	97.8	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359642	Organic Carbon	102	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P420179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359686	Color (true)	0.358	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359743	Turbidity	2.96	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359639	Chloride	0.329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359639	Sulfate	0.132	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359779	Chloride	0.476	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359779	Sulfate	0.327	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359644	Ammonia-N	0.974	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359744	Ammonia-N	0.519	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359459	Kjeldahl Nitrogen	2.62	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359745	Kjeldahl Nitrogen	5.63	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359721	NO2NO3-N	3.74	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359745	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359744	Total-P	1.20	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P420552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360064	Total Alkalinity	2.06	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P420667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359743	TDS	2.96	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P420555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2360064	Fluoride	0.953	Spike	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P420538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359642	Organic Carbon	0.395	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A114965

Included Lab Sample IDs: 2359742, 2359743

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A114967

Included Lab Sample IDs: 2359742, 2359743

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114999

Included Lab Sample IDs: 2359742

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115032

Included Lab Sample IDs: 2359744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115077

Included Lab Sample IDs: 2359744, 2359745

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115115

Included Lab Sample IDs: 2359744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115124

Included Lab Sample IDs: 2359745

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115137

Included Lab Sample IDs: 2359745

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115137

Included Lab Sample IDs: 2359745

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115139

Included Lab Sample IDs: 2359745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	98.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115145

Included Lab Sample IDs: 2359744, 2359745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	99.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115150

Included Lab Sample IDs: 2359742, 2359743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	94.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A115150

Included Lab Sample IDs: 2359742, 2359743

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115158

Included Lab Sample IDs: 2359744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A115188

Included Lab Sample IDs: 2359743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.1	100	P/P	90 - 110
Sulfate	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	
					LCS	MS
DEP SOP: NU-094-1	Color (true)	99.9			0.358	
EPA 180.1 Rev. 2.0	Turbidity	101			2.96	
EPA 300.0 Rev. 2.1	Chloride	103	99.3	99.6	0.329	
	Chloride	101	96.0	97.6	0.476	
	Sulfate	102	96.6	96.7	0.132	
	Sulfate	102	98.3	98.9	0.327	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	102	103		0.974
	Ammonia-N	94.4	95.6	96.2		0.519
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.6	98.7	94.8		2.62
	Kjeldahl Nitrogen	109				5.63
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	93.0	97.0		3.74
	NO2NO3-N	102	101	100		0.496
EPA 365.1 Rev. 2.0	Total-P	108	110	108		1.20
SM 2320 B-2011	Total Alkalinity	100			2.06	
SM 2540 C-2011	TDS				2.96	
SM 4500-F- C-2011	Fluoride	99.2	99.0	97.8		0.953
SM 5310 B-2011	Organic Carbon	98.6	102	103		0.395

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2359742, 2359743
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2359742, 2359743
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2359742, 2359743
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2359742, 2359743
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2359744, 2359745
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2359744, 2359745
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2359744, 2359745
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2359744, 2359745
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2359742, 2359743
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2359742, 2359743
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2359742, 2359743
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2359742, 2359743
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2359744, 2359745

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	09/27/2022			09/27/2022 15:45	Anna M. Plaviak	2359742, 2359743
EPA 180.1 Rev. 2.0	09/27/2022			09/27/2022 15:55	Chandler E Cox	2359743
	09/27/2022			09/27/2022 15:56	Chandler E Cox	2359742
EPA 300.0 Rev. 2.1	09/27/2022			09/30/2022 09:20	Anna M. Plaviak	2359742
	09/27/2022			10/06/2022 18:41	Anna M. Plaviak	2359743
EPA 350.1 Rev. 2.0	09/27/2022			10/05/2022 12:37	Ping Hua	2359745
	09/27/2022			10/06/2022 12:57	Ping Hua	2359744
EPA 351.2 Rev. 2.0	09/27/2022	09/28/2022 12:10	Alexandra J Mattheus	10/04/2022 10:50	Samantha L Bates	2359744
	09/27/2022	09/29/2022 11:16	Simonne.V. Calhoun	10/04/2022 15:24	Samantha L Bates	2359745
EPA 353.2 Rev. 2.0	09/27/2022			09/29/2022 15:56	Judith K. Clark	2359744
	09/27/2022			10/05/2022 10:13	Beverly Y. Sanders	2359745
EPA 365.1 Rev. 2.0	09/27/2022	09/30/2022 12:23	Adam P Silver	10/03/2022 10:28	James L Waggeberby	2359744
	09/27/2022	09/30/2022 12:23	Adam P Silver	10/03/2022 10:35	James L Waggeberby	2359745
SM 2320 B-2011	09/27/2022			10/05/2022 19:59	Dale L. Simmons	2359742
	09/27/2022			10/05/2022 20:12	Dale L. Simmons	2359743
SM 2540 C-2011	09/27/2022			09/30/2022 16:11	Yijie Li	2359742, 2359743
SM 2540 D-2011	09/27/2022			09/30/2022 16:11	Yijie Li	2359742, 2359743
SM 4500-F- C-2011	09/27/2022			10/05/2022 19:59	Dale L. Simmons	2359742
	09/27/2022			10/05/2022 20:12	Dale L. Simmons	2359743
SM 5310 B-2011	09/27/2022			10/05/2022 08:44	Touraj Touran	2359744
	09/27/2022			10/05/2022 08:57	Touraj Touran	2359745