Chemical Analysis Report

CEN-DIST-2023-09-14-02

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

Event Description: **Run 14**
Request ID: **RQ-2023-09-11-35**
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.
Chris Bowen, B.S.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Chris Bowen, Environmental Administrator

Date Certified: 05-OCT-2023 10:46

Chris Bowen

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 at Vent **Collection Date/Time: 09/13/2023 11:11**

Field ID: G1CE0109 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437205	DEP SOP: NU-094-1	Color (true)	6.0		PCU	P435016	
	EPA 180.1 Rev. 2.0	Turbidity	0.95	I	NTU	P435019	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P435377	
		Sulfate	9.1	A	mg SO4/L	P435380	
	SM 2320 B-2011	Total Alkalinity	135		mg CaCO3/L	P435267	
	SM 2540 C-2015	TDS	190		mg/L	P435609	
	SM 2540 D-2015	TSS	3	I	mg/L	P435611	
	SM 4500-F- C-2011	Fluoride	0.052	I	mg F/L	P435272	
2437209	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P435141	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P435787	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P435284	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P435248	
	SM 5310 B-2011	Organic Carbon	1.6		mg C/L	P435601	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Blue Springs (Lake County) at Weir **Collection Date/Time: 09/13/2023 11:50**

Field ID: G1CE0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437206	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P435016	
	EPA 180.1 Rev. 2.0	Turbidity	0.30	I	NTU	P435019	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P435377	
		Sulfate	9.7		mg SO4/L	P435380	
	SM 2320 B-2011	Total Alkalinity	103		mg CaCO3/L	P435267	
	SM 2540 C-2015	TDS	148		mg/L	P435609	
	SM 2540 D-2015	TSS	2	I	mg/L	P435611	
	SM 4500-F- C-2011	Fluoride	0.083	I	mg F/L	P435272	
2437210	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P435142	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P435788	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P435284	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P435248	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P435601	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Holiday Springs above Pump House **Collection Date/Time: 09/13/2023 13:05**

Field ID: G1CE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437207	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P435016	
	EPA 180.1 Rev. 2.0	Turbidity	0.15	I	NTU	P435019	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P435377	
		Sulfate	13		mg SO4/L	P435380	
	SM 2320 B-2011	Total Alkalinity	107		mg CaCO3/L	P435267	
	SM 2540 C-2015	TDS	158		mg/L	P435609	
	SM 2540 D-2015	TSS	2	U	mg/L	P435611	
	SM 4500-F- C-2011	Fluoride	0.093	I	mg F/L	P435272	
2437211	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P435142	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P435788	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.5		mg N/L	P435284	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P435248	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P435601	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Double Run Spring Run DS of Double Run Rd **Collection Date/Time: 09/13/2023 13:38**

Field ID: G1CE0122 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437208	DEP SOP: NU-094-1	Color (true)	25		PCU	P435016	
	EPA 180.1 Rev. 2.0	Turbidity	0.30	I	NTU	P435019	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P435377	
		Sulfate	17		mg SO4/L	P435380	
	SM 2320 B-2011	Total Alkalinity	52		mg CaCO3/L	P435267	
	SM 2540 C-2015	TDS	124	A	mg/L	P435609	
	SM 2540 D-2015	TSS	3	I A	mg/L	P435611	
	SM 4500-F- C-2011	Fluoride	0.052	I	mg F/L	P435272	
2437212	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P435142	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P435788	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.6		mg N/L	P435284	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P435248	
	SM 5310 B-2011	Organic Carbon	3.4		mg C/L	P435601	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FB **Collection Date/Time: 09/13/2023 13:47**

Field ID: FB_09132023 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437213	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P435016	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P435019	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P435377	
		Sulfate	0.20	U	mg SO4/L	P435380	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P435324	RPD
	SM 2540 C-2015	TDS	15	U	mg/L	P435609	
	SM 2540 D-2015	TSS	2	U	mg/L	P435611	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P435327	
2437214	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P435142	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P435788	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P435284	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P435248	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P435601	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P435016

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435019

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435377

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435380

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435141

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435142

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435787

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435788

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435284

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435248

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

Reference Method: SM 2320 B-2011
Batch ID: P435267

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

Reference Method: SM 2320 B-2011
Batch ID: P435324

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

Reference Method: SM 2540 C-2015
Batch ID: P435609

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P435611

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P435272

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P435327

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P435601

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: P435016

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435019

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435377

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435380

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435141

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435787

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435788

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435284

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435248

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

Reference Method: SM 2320 B-2011
Batch ID: P435267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.3		P	92 - 105

Reference Method: SM 2320 B-2011
Batch ID: P435324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.6		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P435609

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

Reference Method: SM 2540 D-2015
Batch ID: P435611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	99.6		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P435272

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P435327

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

Reference Method: SM 5310 B-2011
Batch ID: P435601

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437205	Chloride	102		P	90 - 110
2437371	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437205	Sulfate	99.9		P	90 - 110
2437371	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437162	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437210	Ammonia-N	96.6	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437113	Kjeldahl Nitrogen	104	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437236	Kjeldahl Nitrogen	97.1	93.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437062	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437212	Total-P	108	108	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P435272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437050	Fluoride	98.3	98.3	P/P	94 - 106

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P435327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437970	Fluoride	100	99.5	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P435601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437149	Organic Carbon	93.8	96.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P435016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437234	Color (true)	0.0992	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437054	Turbidity	5.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437205	Chloride	0.859	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P435380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437205	Sulfate	0.170	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437162	Ammonia-N	0.954	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437210	Ammonia-N	2.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437113	Kjeldahl Nitrogen	3.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437236	Kjeldahl Nitrogen	2.26	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437062	NO2NO3-N	0.778	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437212	Total-P	0.423	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P435267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437050	Total Alkalinity	1.78	Sample	P	0 - 3.9

Reference Method: SM 2320 B-2011
Batch ID: P435324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437970	Total Alkalinity	4.20	Sample	F	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P435609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437208	TDS	2.41	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P435272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437050	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 4500-F- C-2011
Batch ID: P435327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437970	Fluoride	0.484	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P435601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437149	Organic Carbon	2.56	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A121541
Included Lab Sample IDs: 2437205, 2437206, 2437207, 2437208, 2437213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A121543
Included Lab Sample IDs: 2437205, 2437206, 2437207, 2437208, 2437213

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A121599
Included Lab Sample IDs: 2437209, 2437210, 2437211, 2437212, 2437214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	98.6	P/P	90 - 110
Ammonia-N	98.6	99.8	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A121658
Included Lab Sample IDs: 2437205, 2437206, 2437207, 2437208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.6	96.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A121658
Included Lab Sample IDs: 2437205, 2437206, 2437207, 2437208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A121662
Included Lab Sample IDs: 2437209, 2437210, 2437211, 2437212, 2437214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A121687
Included Lab Sample IDs: 2437213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.4	93.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A121687
Included Lab Sample IDs: 2437213

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A121687
Included Lab Sample IDs: 2437213

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121698
Included Lab Sample IDs: 2437210, 2437211, 2437212

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121699
Included Lab Sample IDs: 2437214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	96.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A121711
Included Lab Sample IDs: 2437205, 2437206, 2437207, 2437208, 2437213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	102	P/P	90 - 110
Sulfate	99.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121723
Included Lab Sample IDs: 2437209

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

Reference Method: SM 5310 B-2011
Run ID: A121794
Included Lab Sample IDs: 2437209, 2437210, 2437211, 2437212, 2437214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	97.2	P/P	90 - 110
Organic Carbon	97.6	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A121912
Included Lab Sample IDs: 2437209, 2437210, 2437211, 2437212, 2437214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	110	95.2	P/P	90 - 110
Kjeldahl Nitrogen	99.3	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	98.6				0.0992	
EPA 180.1 Rev. 2.0	Turbidity	102				5.19	
EPA 300.0 Rev. 2.1	Chloride	103	102	104		0.859	
	Sulfate	101	99.9	102		0.170	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	103	102			0.954
	Ammonia-N	99.0	96.6	99.2			2.44
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	104	107			3.01
	Kjeldahl Nitrogen	102	97.1	93.8			2.26
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	105			0.778
EPA 365.1 Rev. 2.0	Total-P	104	108	108			0.423
SM 2320 B-2011	Total Alkalinity	96.3				1.78	
	Total Alkalinity	96.6				4.20	
SM 2540 C-2015	TDS	104				2.41	
SM 2540 D-2015	TSS	99.6					
SM 4500-F- C-2011	Fluoride	98.3	98.3	98.3			0.0
	Fluoride	100	100	99.5			0.484
SM 5310 B-2011	Organic Carbon	97.6	93.8	96.4			2.56

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2437205, 2437206, 2437207, 2437208, 2437213
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2437205, 2437206, 2437207, 2437208, 2437213
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2437205, 2437206, 2437207, 2437208, 2437213
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2437205, 2437206, 2437207, 2437208, 2437213
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2437209, 2437210, 2437211, 2437212, 2437214
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2437209, 2437210, 2437211, 2437212, 2437214
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2437209, 2437210, 2437211, 2437212, 2437214
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2437209, 2437210, 2437211, 2437212, 2437214
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2437205, 2437206, 2437207, 2437208, 2437213
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2437205, 2437206, 2437207, 2437208, 2437213
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2437205, 2437206, 2437207, 2437208, 2437213
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2437205, 2437206, 2437207, 2437208, 2437213
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2437209, 2437210, 2437211, 2437212, 2437214

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	09/14/2023			09/14/2023 14:04	Samantha L Bates	2437205, 2437206
	09/14/2023			09/14/2023 14:05	Samantha L Bates	2437207, 2437208
	09/14/2023			09/14/2023 14:06	Samantha L Bates	2437213
EPA 180.1 Rev. 2.0	09/14/2023			09/14/2023 13:21	Alexis Price	2437205
	09/14/2023			09/14/2023 13:22	Alexis Price	2437206
	09/14/2023			09/14/2023 13:24	Alexis Price	2437207
	09/14/2023			09/14/2023 13:28	Alexis Price	2437208, 2437213
EPA 300.0 Rev. 2.1	09/14/2023			09/21/2023 07:21	James L Waggerby	2437205
	09/14/2023			09/21/2023 09:06	James L Waggerby	2437206
	09/14/2023			09/21/2023 09:21	James L Waggerby	2437207
	09/14/2023			09/21/2023 09:36	James L Waggerby	2437208
	09/14/2023			09/21/2023 09:51	James L Waggerby	2437213
EPA 350.1 Rev. 2.0	09/14/2023			09/18/2023 13:14	Ping Hua	2437209
	09/14/2023			09/18/2023 13:26	Ping Hua	2437210
	09/14/2023			09/18/2023 13:30	Ping Hua	2437211
	09/14/2023			09/18/2023 13:32	Ping Hua	2437212
	09/14/2023			09/18/2023 13:33	Ping Hua	2437214
EPA 351.2 Rev. 2.0	09/14/2023	10/02/2023 11:13	Simonne.V. Calhoun	10/03/2023 11:15	Ping Hua	2437209
	09/14/2023	10/02/2023 11:13	Simonne.V. Calhoun	10/03/2023 12:22	Ping Hua	2437210
	09/14/2023	10/02/2023 11:13	Simonne.V. Calhoun	10/03/2023 12:24	Ping Hua	2437211
	09/14/2023	10/02/2023 11:13	Simonne.V. Calhoun	10/03/2023 12:25	Ping Hua	2437212
	09/14/2023	10/02/2023 11:13	Simonne.V. Calhoun	10/03/2023 12:27	Ping Hua	2437214
EPA 353.2 Rev. 2.0	09/14/2023			09/19/2023 15:15	Anna M. Plaviak	2437209
	09/14/2023			09/19/2023 15:20	Anna M. Plaviak	2437214
	09/14/2023			09/19/2023 16:17	Anna M. Plaviak	2437210
	09/14/2023			09/19/2023 16:18	Anna M. Plaviak	2437211
	09/14/2023			09/19/2023 16:19	Anna M. Plaviak	2437212
EPA 365.1 Rev. 2.0	09/14/2023	09/20/2023 15:00	Alexis Price	09/21/2023 13:31	Simonne.V. Calhoun	2437212
	09/14/2023	09/20/2023 15:00	Alexis Price	09/21/2023 13:35	Simonne.V. Calhoun	2437210
	09/14/2023	09/20/2023 15:00	Alexis Price	09/21/2023 13:36	Simonne.V. Calhoun	2437211
	09/14/2023	09/20/2023 15:00	Alexis Price	09/21/2023 14:42	Simonne.V. Calhoun	2437214
	09/14/2023	09/20/2023 15:00	Alexis Price	09/22/2023 13:32	James L Waggerby	2437209
SM 2320 B-2011	09/14/2023			09/20/2023 11:01	Adam P Silver	2437205
	09/14/2023			09/20/2023 11:14	Adam P Silver	2437206
	09/14/2023			09/20/2023 11:28	Adam P Silver	2437207
	09/14/2023			09/20/2023 11:41	Adam P Silver	2437208
	09/14/2023			09/20/2023 22:55	Dale L. Simmons	2437213
SM 2540 C-2015	09/14/2023			09/19/2023 15:12	Yijie Li	2437205, 2437206, 2437207, 2437208, 2437213

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2015	09/14/2023			09/19/2023 15:12	Yijie Li	2437205, 2437206, 2437207, 2437208, 2437213
SM 4500-F- C-2011	09/14/2023			09/20/2023 11:01	Adam P Silver	2437205
	09/14/2023			09/20/2023 11:14	Adam P Silver	2437206
	09/14/2023			09/20/2023 11:28	Adam P Silver	2437207
	09/14/2023			09/20/2023 11:41	Adam P Silver	2437208
	09/14/2023			09/20/2023 22:55	Dale L. Simmons	2437213
SM 5310 B-2011	09/14/2023			09/27/2023 10:10	Khloe J Berg	2437209
	09/14/2023			09/27/2023 10:23	Khloe J Berg	2437210
	09/14/2023			09/27/2023 11:02	Khloe J Berg	2437211
	09/14/2023			09/27/2023 11:15	Khloe J Berg	2437212
	09/14/2023			09/27/2023 11:28	Khloe J Berg	2437214