Chemical Analysis Report

SW-DIST-2022-06-22-01

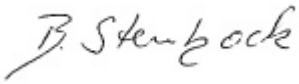
Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Run 13**
Request ID: **RQ-2022-04-18-47**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

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: 14-JUL-2022 12:33



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: Lake Gordon - Center **Collection Date/Time: 06/21/2022 09:30**

Field ID: G3SW0095 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2336483	DEP SOP: NU-094-1	Color (true)	10		PCU	P415579	
	EPA 180.1 Rev. 2.0	Turbidity	1.0	I	NTU	P415590	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P415943	
		Sulfate	7.4		mg SO4/L	P415948	
	SM 2320 B-2011	Total Alkalinity	41		mg CaCO3/L	P415768	
	SM 2540 C-2011	TDS	72		mg/L	P415904	
	SM 2540 D-2011	TSS	2	I	mg/L	P415893	
	SM 4500-F- C-2011	Fluoride	0.085	I	mg F/L	P415772	
2336487	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P415978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P415789	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416274	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P415932	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P415818	

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: Lake Whistler @ Center **Collection Date/Time: 06/21/2022 10:30**

Field ID: G3SW0100 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2336484	DEP SOP: NU-094-1	Color (true)	12	A	PCU	P415579	
	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P415590	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P415943	
		Sulfate	34		mg SO4/L	P415948	
	SM 2320 B-2011	Total Alkalinity	20		mg CaCO3/L	P415768	
	SM 2540 C-2011	TDS	141		mg/L	P415904	
	SM 2540 D-2011	TSS	2	I	mg/L	P415893	
	SM 4500-F- C-2011	Fluoride	0.18		mg F/L	P415772	
2336488	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P415978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P415791	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416274	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P415932	
	SM 5310 B-2011	Organic Carbon	6.4		mg C/L	P415818	

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: Lake Ida @ Center **Collection Date/Time: 06/21/2022 11:50**

Field ID: G3SW0043 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2336485	DEP SOP: NU-094-1	Color (true)	19		PCU	P415579	
	EPA 180.1 Rev. 2.0	Turbidity	0.85	I	NTU	P415590	
	EPA 300.0 Rev. 2.1	Chloride	35		mg Cl/L	P415943	
		Sulfate	19		mg SO4/L	P415948	
	SM 2320 B-2011	Total Alkalinity	67		mg CaCO3/L	P415954	
	SM 2540 C-2011	TDS	156		mg/L	P415904	
	SM 2540 D-2011	TSS	2	U	mg/L	P415893	
	SM 4500-F- C-2011	Fluoride	0.15		mg F/L	P415962	
2336489	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P415884	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P415869	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416274	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P415932	
	SM 5310 B-2011	Organic Carbon	8.4		mg C/L	P415856	

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.

Sample Location: Lake Van @ Center **Collection Date/Time: 06/21/2022 12:45**

Field ID: G4SW0106 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2336486	DEP SOP: NU-094-1	Color (true)	45		PCU	P415579	
	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P415590	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P415943	
		Sulfate	18		mg SO4/L	P415948	
	SM 2320 B-2011	Total Alkalinity	31		mg CaCO3/L	P415954	
	SM 2540 C-2011	TDS	113		mg/L	P415904	
	SM 2540 D-2011	TSS	6	I	mg/L	P415893	
	SM 4500-F- C-2011	Fluoride	0.30		mg F/L	P415962	
2336490	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P415884	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P415869	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416274	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P415932	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P415856	

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: P415579

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415590

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415943

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415948

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415884

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415789

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415791

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415869

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: P416274

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415932

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

Reference Method: SM 2320 B-2011
Batch ID: P415768

Component	Result	Code	Units
Total Alkalinity	1.0	U	mg CaCO3/L

Reference Method: SM 2320 B-2011
Batch ID: P415954

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

Reference Method: SM 2540 C-2011
Batch ID: P415904

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P415893

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P415772

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P415962

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P415818

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P415856

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: P415579

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.9		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415884

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415789

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415791

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415869

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416274

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415932

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

Reference Method: SM 2320 B-2011
Batch ID: P415768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P415954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P415772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P415962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P415818

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

Reference Method: SM 5310 B-2011
Batch ID: P415856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336204	Chloride	98.7		P	90 - 110
2336486	Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336204	Sulfate	96.2		P	90 - 110
2336486	Sulfate	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336489	Ammonia-N	98.4	95.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336404	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336404	Kjeldahl Nitrogen	104	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336078	Kjeldahl Nitrogen	108	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336314	NO2NO3-N	99.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336487	Total-P	101	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P415772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336312	Fluoride	101	101	P/P	94 - 104

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P415962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336989	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P415818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336228	Organic Carbon	97.1	99.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P415856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2336489	Organic Carbon	96.5	98.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P415579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336484	Color (true)	0.750	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P415590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336231	Turbidity	6.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336204	Chloride	0.252	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P415948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336204	Sulfate	0.160	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336489	Ammonia-N	2.96	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336404	Ammonia-N	0.340	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336404	Kjeldahl Nitrogen	2.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336078	Kjeldahl Nitrogen	2.26	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336185	Kjeldahl Nitrogen	0.302	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336314	NO2NO3-N	2.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336487	Total-P	0.360	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P415768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336312	Total Alkalinity	0.00338	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P415954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336989	Total Alkalinity	0.202	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P415904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336312	TDS	3.25	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P415772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336312	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P415962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336989	Fluoride	0.0	Spike	P	0 - 1.6

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P415818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336228	Organic Carbon	1.09	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P415856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2336489	Organic Carbon	1.08	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: A112988
Included Lab Sample IDs: 2336483, 2336484, 2336485, 2336486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	98.3	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A112991
Included Lab Sample IDs: 2336483, 2336484, 2336485, 2336486

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

Reference Method: SM 2320 B-2011
Run ID: A113067
Included Lab Sample IDs: 2336483, 2336484

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A113067
Included Lab Sample IDs: 2336483, 2336484

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

Reference Method: SM 5310 B-2011
Run ID: A113098
Included Lab Sample IDs: 2336487, 2336488

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

Reference Method: SM 5310 B-2011
Run ID: A113129
Included Lab Sample IDs: 2336489, 2336490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113138
Included Lab Sample IDs: 2336489, 2336490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A113156
Included Lab Sample IDs: 2336483, 2336484, 2336485, 2336486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	100	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A113156
Included Lab Sample IDs: 2336483, 2336484, 2336485, 2336486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	100	99.3	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A113157
Included Lab Sample IDs: 2336485, 2336486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.9	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A113157
Included Lab Sample IDs: 2336485, 2336486

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113166
Included Lab Sample IDs: 2336487, 2336488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113179
Included Lab Sample IDs: 2336487, 2336488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	99.7	P/P	90 - 110
Kjeldahl Nitrogen	96.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113201
Included Lab Sample IDs: 2336489, 2336490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113235
Included Lab Sample IDs: 2336490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113279
Included Lab Sample IDs: 2336487, 2336488, 2336489

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113279
Included Lab Sample IDs: 2336487, 2336488, 2336489

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A113334
Included Lab Sample IDs: 2336487, 2336488, 2336489, 2336490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	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	SMP	MS
DEP SOP: NU-094-1	Color (true)	98.9				0.750	
EPA 180.1 Rev. 2.0	Turbidity	96.1				6.84	
EPA 300.0 Rev. 2.1	Chloride	98.9	98.7	97.4		0.252	
	Sulfate	98.9	96.2	94.9		0.160	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	98.4	95.2			2.96
	Ammonia-N	100	100	100			0.340
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	104	98.6			2.66
	Kjeldahl Nitrogen	108	108	104			2.26
	Kjeldahl Nitrogen	104					0.302
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.0	102			2.41
EPA 365.1 Rev. 2.0	Total-P	101	101	100			0.360
SM 2320 B-2011	Total Alkalinity	101				0.0033	
	Total Alkalinity	101				0.202	
SM 2540 C-2011	TDS					3.25	
SM 4500-F- C-2011	Fluoride	101	101	101			0.0
	Fluoride	99.8	101	101			0.0
SM 5310 B-2011	Organic Carbon	95.2	97.1	99.2			1.09
	Organic Carbon	96.6	96.5	98.0			1.08

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2336483, 2336484, 2336485, 2336486
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2336483, 2336484, 2336485, 2336486
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2336483, 2336484, 2336485, 2336486
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2336483, 2336484, 2336485, 2336486
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2336487, 2336488, 2336489, 2336490
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2336487, 2336488, 2336489, 2336490
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2336487, 2336488, 2336489, 2336490
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2336487, 2336488, 2336489, 2336490
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2336483, 2336484, 2336485, 2336486
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2336483, 2336484, 2336485, 2336486
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2336483, 2336484, 2336485, 2336486
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2336483, 2336484, 2336485, 2336486
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2336487, 2336488, 2336489, 2336490

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	06/22/2022			06/22/2022 15:22	Samantha L Bates	2336483
	06/22/2022			06/22/2022 15:24	Samantha L Bates	2336484, 2336485
	06/22/2022			06/22/2022 15:25	Samantha L Bates	2336486
EPA 180.1 Rev. 2.0	06/22/2022			06/22/2022 13:46	Khloe J Berg	2336483
	06/22/2022			06/22/2022 13:47	Khloe J Berg	2336484
	06/22/2022			06/22/2022 13:49	Khloe J Berg	2336485
	06/22/2022			06/22/2022 13:50	Khloe J Berg	2336486
EPA 300.0 Rev. 2.1	06/22/2022			06/28/2022 19:01	Anna M. Plaviak	2336486
	06/22/2022			06/28/2022 21:50	Anna M. Plaviak	2336483
	06/22/2022			06/28/2022 22:02	Anna M. Plaviak	2336484
	06/22/2022			06/28/2022 22:14	Anna M. Plaviak	2336485
EPA 350.1 Rev. 2.0	06/22/2022			06/28/2022 11:56	Ping Hua	2336489
	06/22/2022			06/28/2022 12:01	Ping Hua	2336490
	06/22/2022			06/29/2022 13:59	Judith K. Clark	2336487
	06/22/2022			06/29/2022 14:01	Judith K. Clark	2336488
EPA 351.2 Rev. 2.0	06/22/2022	06/28/2022 11:30	Simonne.V. Calhoun	06/29/2022 16:12	Alexandra J Mattheus	2336487
	06/22/2022	06/28/2022 11:30	Simonne.V. Calhoun	06/29/2022 17:05	Alexandra J Mattheus	2336488
	06/22/2022	06/29/2022 14:44	Samantha L Bates	06/30/2022 12:32	Alexandra J Mattheus	2336489
	06/22/2022	06/29/2022 14:44	Samantha L Bates	06/30/2022 12:34	Alexandra J Mattheus	2336490
EPA 353.2 Rev. 2.0	06/22/2022			07/07/2022 13:01	Judith K. Clark	2336487
	06/22/2022			07/07/2022 13:02	Judith K. Clark	2336488
	06/22/2022			07/07/2022 13:03	Judith K. Clark	2336489
	06/22/2022			07/07/2022 13:04	Judith K. Clark	2336490
EPA 365.1 Rev. 2.0	06/22/2022	06/30/2022 14:54	Adam P Silver	07/01/2022 12:11	James L Waggerby	2336490
	06/22/2022	06/30/2022 14:54	Adam P Silver	07/05/2022 12:56	Simonne.V. Calhoun	2336487
	06/22/2022	06/30/2022 14:54	Adam P Silver	07/05/2022 12:57	Simonne.V. Calhoun	2336488
	06/22/2022	06/30/2022 14:54	Adam P Silver	07/05/2022 12:58	Simonne.V. Calhoun	2336489
SM 2320 B-2011	06/22/2022			06/25/2022 14:17	Dale L. Simmons	2336483
	06/22/2022			06/25/2022 14:30	Dale L. Simmons	2336484
	06/22/2022			06/28/2022 21:47	Dale L. Simmons	2336485
	06/22/2022			06/28/2022 22:00	Dale L. Simmons	2336486
SM 2540 C-2011	06/22/2022			06/24/2022 15:21	Yijie Li	2336483, 2336484, 2336485, 2336486
SM 2540 D-2011	06/22/2022			06/24/2022 15:21	Yijie Li	2336483, 2336484, 2336485, 2336486
SM 4500-F- C-2011	06/22/2022			06/25/2022 14:17	Dale L. Simmons	2336483
	06/22/2022			06/25/2022 14:30	Dale L. Simmons	2336484
	06/22/2022			06/28/2022 21:47	Dale L. Simmons	2336485
	06/22/2022			06/28/2022 22:00	Dale L. Simmons	2336486
SM 5310 B-2011	06/22/2022			06/24/2022 20:42	Khloe J Berg	2336487
	06/22/2022			06/24/2022 20:55	Khloe J Berg	2336488
	06/22/2022			06/27/2022 15:50	Khloe J Berg	2336489

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	06/22/2022			06/27/2022 17:14	Khloe J Berg	2336490