

Chemical Analysis Report

NE-DIST-2022-02-15-01

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

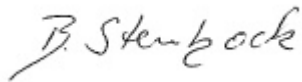
Event Description: **GTM NERR-Guana River SMP-7 site**
Request ID: **RQ-2022-02-14-19**
Customer: **NE-DIST**
Project ID: **SMP**

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

Date Certified: 09-MAR-2022 18:37



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: DEPGR3

Collection Date/Time: 02/14/2022 08:23

Field ID: GTMGR3NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2305614	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P409872	
	SM 2320 B-2011	Total Alkalinity	114		mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	6	I	mg/L	P410195	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P410039	
2305620	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P409825	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P409901	
	SM 5310 B-2011	Organic Carbon	3.4		mg C/L	P410735	
2305626	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.01		mg N/L	P410403	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.29	I	mg N/L	P409825	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P410112	
2305632	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P409866	

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: DEPGR2

Collection Date/Time: 02/14/2022 08:45

Field ID: GTMGRNUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2305615	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P409872	
	SM 2320 B-2011	Total Alkalinity	115		mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	4	I	mg/L	P410195	
	SM 4500 F-C-2011	Fluoride	0.99		mg F/L	P410039	
2305621	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P409825	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P409901	
	SM 5310 B-2011	Organic Carbon	4.9		mg C/L	P410735	
2305627	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.01		mg N/L	P410403	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.37	I	mg N/L	P409825	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P410112	
2305633	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P409866	

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: DEPGL4

Collection Date/Time: 02/14/2022 10:55

Field ID: GTMGL4NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2305616	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P409872	
	SM 2320 B-2011	Total Alkalinity	118		mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	21		mg/L	P410195	
	SM 4500 F-C-2011	Fluoride	0.70		mg F/L	P410039	
2305622	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P409881	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P409901	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P410735	
2305628	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.011		mg N/L	P410403	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.80		mg N/L	P409881	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.005	I	mg N/L	P410112	
2305634	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P409866	

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: DEPGR1

Collection Date/Time: 02/14/2022 09:12

Field ID: GTMGR1NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2305617	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P409872	
	SM 2320 B-2011	Total Alkalinity	117		mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	10	I	mg/L	P410195	
	SM 4500 F-C-2011	Fluoride	0.91		mg F/L	P410039	
2305623	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P409881	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P409901	
	SM 5310 B-2011	Organic Carbon	7.3		mg C/L	P410735	
2305629	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.040		mg N/L	P410403	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.60		mg N/L	P409881	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	I	mg N/L	P410112	
2305635	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P409867	

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: DEPL3

Collection Date/Time: 02/14/2022 11:29

Field ID: GTMLMNUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2305618	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P409872	
	SM 2320 B-2011	Total Alkalinity	116		mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	26		mg/L	P410195	
	SM 4500 F-C-2011	Fluoride	0.57		mg F/L	P410039	
2305624	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P409881	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P409901	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P410735	
2305630	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.013		mg N/L	P410403	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.83		mg N/L	P410107	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P410112	
2305636	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P409867	

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: DEPGL2

Collection Date/Time: 02/14/2022 11:58

Field ID: GTMGL2NUT

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2305619	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P409872	
	SM 2320 B-2011	Total Alkalinity	130	A	mg CaCO3/L	P410036	
	SM 2540 D-2011	TSS	20	A	mg/L	P410194	
	SM 4500 F-C-2011	Fluoride	0.38		mg F/L	P410039	
2305625	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P409966	
	EPA 365.1 Rev. 2.0	Total-P	0.093		mg P/L	P409901	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P410453	
2305631	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.015		mg N/L	P410403	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	1.1		mg N/L	P409966	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P410232	
2305637	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P409867	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P409872

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0 dissolved
Batch ID: P410403

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409825

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409881

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409966

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P409825

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P409881

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P409966

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P410107

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 dissolved
Batch ID: P410112

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

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410232

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409901

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409866

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409867

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

Reference Method: SM 2320 B-2011
Batch ID: P410036

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

Reference Method: SM 2540 D-2011
Batch ID: P410194

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P410195

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P410039

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: P410453

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

Reference Method: SM 5310 B-2011
Batch ID: P410735

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P409872

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

Reference Method: EPA 350.1 Rev. 2.0 dissolved

Batch ID: P410403

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P409825

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P409881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P409966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P409825

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P409881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P409966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P410107

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410112

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

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410232

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409901

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409866

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409867

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

Reference Method: SM 2320 B-2011
Batch ID: P410036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P410039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P410453

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

Reference Method: SM 5310 B-2011
Batch ID: P410735

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0 dissolved
Batch ID: P410403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305626	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305390	Kjeldahl Nitrogen	97.9	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305623	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P409966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2306066	Kjeldahl Nitrogen	99.4	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P409825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305390	Kjeldahl Nitrogen	97.9	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P409881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305623	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P409966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2306066	Kjeldahl Nitrogen	99.4	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P410107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305630	Kjeldahl Nitrogen	109	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305390	NO2NO3-N	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305563	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305622	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305632	O-Phosphate-P	97.4	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305637	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P410039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305619	Fluoride	97.6	98.3	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P410453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305625	Organic Carbon	94.1		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P410735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2305781	Organic Carbon	93.3	93.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P409872

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305516	Turbidity	6.64	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0 dissolved

Batch ID: P410403

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305626	Ammonia-N	1.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P409825

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305390	Kjeldahl Nitrogen	6.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P409881

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305623	Kjeldahl Nitrogen	0.796	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P409966

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2306066	Kjeldahl Nitrogen	0.221	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P409825

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305390	Kjeldahl Nitrogen	6.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P409881

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305623	Kjeldahl Nitrogen	0.796	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P409966

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2306066	Kjeldahl Nitrogen	0.221	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P410107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305630	Kjeldahl Nitrogen	7.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305390	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P410232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305563	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P409901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305622	Total-P	2.58	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305632	O-Phosphate-P	1.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P409867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305637	O-Phosphate-P	1.38	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P410036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305619	Total Alkalinity	0.976	Sample	P	0 - 5.2

Reference Method: SM 2540 D-2011
Batch ID: P410194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305619	TSS	4.00	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P410039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305619	Fluoride	0.476	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P410453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305625	Organic Carbon	1.95	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P410735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2305781	Organic Carbon	0.182	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A110421

Included Lab Sample IDs: 2305632, 2305633, 2305634, 2305635, 2305636, 2305637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	101	P/P	90 - 110
O-Phosphate-P	99.6	99.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A110424

Included Lab Sample IDs: 2305614, 2305615, 2305616, 2305617, 2305618, 2305619

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110467

Included Lab Sample IDs: 2305620, 2305621

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	101	P/P	90 - 110
Kjeldahl Nitrogen	96.1	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A110467

Included Lab Sample IDs: 2305626, 2305627

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

Reference Method: SM 2320 B-2011

Run ID: A110482

Included Lab Sample IDs: 2305614, 2305615, 2305616, 2305617, 2305618, 2305619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.4	96.9	P/P	90 - 110
Total Alkalinity	96.8	94.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A110482

Included Lab Sample IDs: 2305614, 2305615, 2305616, 2305617, 2305618, 2305619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.5	P/P	90 - 110
Fluoride	99.1	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110512

Included Lab Sample IDs: 2305622, 2305623, 2305624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A110512

Included Lab Sample IDs: 2305628, 2305629

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	99.2	P/P	90 - 110
Kjeldahl Nitrogen	96.4	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved

Run ID: A110515

Included Lab Sample IDs: 2305626, 2305627, 2305628, 2305629, 2305630

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110537

Included Lab Sample IDs: 2305625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	94.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A110537

Included Lab Sample IDs: 2305631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A110561

Included Lab Sample IDs: 2305620, 2305621, 2305622, 2305623, 2305624, 2305625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved

Run ID: A110565

Included Lab Sample IDs: 2305631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A110613

Included Lab Sample IDs: 2305630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	94.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0 dissolved

Run ID: A110644

Included Lab Sample IDs: 2305626, 2305627, 2305628, 2305629, 2305630, 2305631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A110664

Included Lab Sample IDs: 2305625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	96.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A110788

Included Lab Sample IDs: 2305620, 2305621, 2305622, 2305623, 2305624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	96.6	P/P	90 - 110
Organic Carbon	96.6	97.0	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
EPA 180.1 Rev. 2.0	Turbidity	97.4			6.64	
EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	96.6	100	102		1.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	97.9	106		6.14
	Kjeldahl Nitrogen	97.2	103	102		0.796
	Kjeldahl Nitrogen	96.7	99.4	99.1		0.221
EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	102	97.9	106		6.14
	Kjeldahl Nitrogen	97.2	103	102		0.796
	Kjeldahl Nitrogen	96.7	99.4	99.1		0.221
	Kjeldahl Nitrogen	98.5	109	98.6		7.45
EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	101	103	103		0.0
	NO2NO3-N	100	102	101		0.494
EPA 365.1 Rev. 2.0	Total-P	105	101	103		2.58
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.8	97.4	99.5		1.84
	O-Phosphate-P	98.8	100	102		1.38
SM 2320 B-2011	Total Alkalinity	98.8			0.976	
SM 2540 D-2011	TSS				4.00	
SM 4500 F-C-2011	Fluoride	96.8	97.6	98.3		0.476
SM 5310 B-2011	Organic Carbon	96.0	94.1			1.95
	Organic Carbon	98.4	93.3	93.1		0.182

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2305614, 2305615, 2305616, 2305617, 2305618, 2305619
EPA 350.1 Rev. 2.0 dissolved	Ammonia, dissolved, in filtered, aqueous matrices as mg N/L	2305626, 2305627, 2305628, 2305629, 2305630, 2305631
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2305620, 2305621, 2305622, 2305623, 2305624, 2305625
EPA 351.2 Rev. 2.0 dissolved	Total Kjeldahl Nitrogen, dissolved, in filtered, aqueous matrices	2305626, 2305627, 2305628, 2305629, 2305630, 2305631
EPA 353.2 Rev. 2.0 dissolved	Nitrite/Nitrate, dissolved, in filtered, aqueous matrices as mg N/L	2305626, 2305627, 2305628, 2305629, 2305630, 2305631
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2305620, 2305621, 2305622, 2305623, 2305624, 2305625
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2305632, 2305633, 2305634, 2305635, 2305636, 2305637
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2305614, 2305615, 2305616, 2305617, 2305618, 2305619
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2305614, 2305615, 2305616, 2305617, 2305618, 2305619
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2305614, 2305615, 2305616, 2305617, 2305618, 2305619
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2305620, 2305621, 2305622, 2305623, 2305624, 2305625

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/15/2022			02/15/2022 15:18	Khloe J Berg	2305614
	02/15/2022			02/15/2022 15:21	Khloe J Berg	2305615
	02/15/2022			02/15/2022 15:23	Khloe J Berg	2305616
	02/15/2022			02/15/2022 15:25	Khloe J Berg	2305617
	02/15/2022			02/15/2022 15:27	Khloe J Berg	2305618
	02/15/2022			02/15/2022 15:30	Khloe J Berg	2305619
EPA 350.1 Rev. 2.0 dissolved	02/15/2022			02/25/2022 12:43	Ping Hua	2305626
	02/15/2022			02/25/2022 12:47	Ping Hua	2305627
	02/15/2022			02/25/2022 12:48	Ping Hua	2305628
	02/15/2022			02/25/2022 12:50	Ping Hua	2305629
	02/15/2022			02/25/2022 12:51	Ping Hua	2305630
EPA 351.2 Rev. 2.0	02/15/2022			02/25/2022 12:52	Ping Hua	2305631
	02/15/2022	02/16/2022 13:48	Samantha L Bates	02/17/2022 12:57	Alexandra J Mattheus	2305620
	02/15/2022	02/16/2022 13:48	Samantha L Bates	02/17/2022 13:01	Alexandra J Mattheus	2305621
	02/15/2022	02/17/2022 14:14	Samantha L Bates	02/18/2022 15:49	Alexandra J Mattheus	2305623
	02/15/2022	02/17/2022 14:14	Samantha L Bates	02/18/2022 15:53	Alexandra J Mattheus	2305622
	02/15/2022	02/17/2022 14:14	Samantha L Bates	02/18/2022 15:54	Alexandra J Mattheus	2305624
EPA 351.2 Rev. 2.0 dissolved	02/15/2022	02/18/2022 10:12	Samantha L Bates	02/22/2022 11:43	Alexandra J Mattheus	2305625
	02/15/2022	02/16/2022 13:48	Samantha L Bates	02/17/2022 13:03	Alexandra J Mattheus	2305626
	02/15/2022	02/16/2022 13:48	Samantha L Bates	02/17/2022 13:05	Alexandra J Mattheus	2305627
	02/15/2022	02/17/2022 14:14	Samantha L Bates	02/18/2022 15:55	Alexandra J Mattheus	2305628
	02/15/2022	02/17/2022 14:14	Samantha L Bates	02/18/2022 15:59	Alexandra J Mattheus	2305629
	02/15/2022	02/18/2022 10:12	Samantha L Bates	02/22/2022 11:45	Alexandra J Mattheus	2305631
EPA 353.2 Rev. 2.0 dissolved	02/15/2022	02/22/2022 13:18	Samantha L Bates	02/24/2022 14:20	Alexandra J Mattheus	2305630
	02/15/2022			02/21/2022 12:52	Beverly Y. Sanders	2305626
	02/15/2022			02/21/2022 12:53	Beverly Y. Sanders	2305627
	02/15/2022			02/21/2022 12:54	Beverly Y. Sanders	2305628
	02/15/2022			02/21/2022 12:55	Beverly Y. Sanders	2305629
	02/15/2022			02/21/2022 12:56	Beverly Y. Sanders	2305630
EPA 365.1 Rev. 2.0	02/15/2022			02/23/2022 09:06	Beverly Y. Sanders	2305631
	02/15/2022	02/17/2022 14:00	Simonne.V. Calhoun	02/22/2022 16:32	Sarah A Nixon	2305622
	02/15/2022	02/17/2022 14:00	Simonne.V. Calhoun	02/22/2022 16:33	Sarah A Nixon	2305620
	02/15/2022	02/17/2022 14:00	Simonne.V. Calhoun	02/22/2022 16:34	Sarah A Nixon	2305621
	02/15/2022	02/17/2022 14:00	Simonne.V. Calhoun	02/22/2022 16:35	Sarah A Nixon	2305623
	02/15/2022	02/17/2022 14:00	Simonne.V. Calhoun	02/22/2022 16:36	Sarah A Nixon	2305624
EPA 365.1 Rev. 2.0 dissolved	02/15/2022	02/17/2022 14:00	Simonne.V. Calhoun	02/22/2022 16:37	Sarah A Nixon	2305625
	02/15/2022			02/15/2022 15:02	James L Waggeberby	2305632
	02/15/2022			02/15/2022 15:07	James L Waggeberby	2305633
	02/15/2022			02/15/2022 15:08	James L Waggeberby	2305634
	02/15/2022			02/15/2022 15:14	James L Waggeberby	2305637

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	02/15/2022			02/15/2022 15:17	James L Waggeberby	2305635
	02/15/2022			02/15/2022 15:18	James L Waggeberby	2305636
SM 2320 B-2011	02/15/2022			02/18/2022 05:51	Dale L. Simmons	2305619
	02/15/2022			02/18/2022 06:18	Dale L. Simmons	2305614
	02/15/2022			02/18/2022 06:32	Dale L. Simmons	2305615
	02/15/2022			02/18/2022 06:45	Dale L. Simmons	2305616
	02/15/2022			02/18/2022 06:58	Dale L. Simmons	2305617
	02/15/2022			02/18/2022 07:55	Dale L. Simmons	2305618
	02/15/2022			02/16/2022 15:36	Yijie Li	2305614, 2305615, 2305616, 2305617, 2305618, 2305619
SM 4500 F-C-2011	02/15/2022			02/18/2022 03:38	Dale L. Simmons	2305619
	02/15/2022			02/18/2022 03:57	Dale L. Simmons	2305614
	02/15/2022			02/18/2022 04:02	Dale L. Simmons	2305615
	02/15/2022			02/18/2022 04:49	Dale L. Simmons	2305616
	02/15/2022			02/18/2022 04:54	Dale L. Simmons	2305617
	02/15/2022			02/18/2022 04:59	Dale L. Simmons	2305618
SM 5310 B-2011	02/15/2022			02/28/2022 03:21	Touraj Touran	2305625
	02/15/2022			03/07/2022 02:58	Touraj Touran	2305620
	02/15/2022			03/07/2022 03:36	Touraj Touran	2305621
	02/15/2022			03/07/2022 04:13	Touraj Touran	2305623
	02/15/2022			03/07/2022 06:11	Touraj Touran	2305622
	02/15/2022			03/07/2022 06:52	Touraj Touran	2305624