

Chemical Analysis Report

NE-DIST-2022-07-12-02

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&blank**
Request ID: **RQ-2022-07-11-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd.
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 02-AUG-2022 14:38

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

Case Narrative

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

Results for the following analytical 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: 07/11/2022 08:05

Field ID: GTMGR3NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340519	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	123		mg CaCO3/L	P417020	
	SM 2540 D-2011	TSS	29		mg/L	P416820	
	SM 4500-F- C-2011	Fluoride	1.3		mg F/L	P417024	
2340526	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.020		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.48		mg N/L	P416463	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	I	mg N/L	P416860	
2340533	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P416532	
2340540	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P416463	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	5.1		mg C/L	P416650	

Sample Location: DEPGR2

Collection Date/Time: 07/11/2022 08:28

Field ID: GTMGRNUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340520	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	122		mg CaCO3/L	P417020	
	SM 2540 D-2011	TSS	21		mg/L	P416820	
	SM 4500-F- C-2011	Fluoride	1.3		mg F/L	P417024	
2340527	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.020		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.54		mg N/L	P416463	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P416860	
2340534	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P416532	
2340541	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P416463	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	4.7		mg C/L	P416650	

Sample Location: DEPGR1

Collection Date/Time: 07/11/2022 08:44

Field ID: GTMGR1NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340521	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	123		mg CaCO3/L	P417020	
	SM 2540 D-2011	TSS	20		mg/L	P416821	
	SM 4500-F- C-2011	Fluoride	1.2		mg F/L	P417024	
2340528	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.066		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.46		mg N/L	P416621	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P416860	
2340535	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P416532	
2340542	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P416621	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	6.3		mg C/L	P416650	

Sample Location: DEPGL4

Collection Date/Time: 07/11/2022 10:15

Field ID: GTMGL4NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340522	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	132		mg CaCO3/L	P417020	
	SM 2540 D-2011	TSS	14		mg/L	P416821	
	SM 4500-F- C-2011	Fluoride	1.2		mg F/L	P417024	
2340529	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.014		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	0.89		mg N/L	P416621	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	I	mg N/L	P416860	
2340536	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P416532	
2340543	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P416621	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P416650	

Sample Location: DEPGL3

Collection Date/Time: 07/11/2022 10:42

Field ID: GTMLMNUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340523	EPA 180.1 Rev. 2.0	Turbidity	6.4	A	NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	137		mg CaCO3/L	P417020	
	SM 2540 D-2011	TSS	16		mg/L	P416821	
	SM 4500-F- C-2011	Fluoride	1.1		mg F/L	P417024	
2340530	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.017		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	1.2		mg N/L	P416621	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	U	mg N/L	P416860	
2340537	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P416532	
2340544	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P416621	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P416760	

Sample Location: DEPGL2

Collection Date/Time: 07/11/2022 11:02

Field ID: GTMGL2NUT

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340524	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	158		mg CaCO3/L	P417020	
	SM 2540 D-2011	TSS	15	A	mg/L	P416821	
	SM 4500-F- C-2011	Fluoride	0.90		mg F/L	P417024	
2340531	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.026		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	1.9		mg N/L	P416621	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.004	I	mg N/L	P416860	
2340538	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P416532	
2340545	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P416621	
	EPA 365.1 Rev. 2.0	Total-P	0.085		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	30		mg C/L	P416760	

Sample Location: DEPGL1

Collection Date/Time: 07/11/2022 11:25

Field ID: GTMGL1NUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2340525	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P416508	
	SM 2320 B-2011	Total Alkalinity	154		mg CaCO3/L	P416839	
	SM 2540 D-2011	TSS	7	I	mg/L	P416818	
	SM 4500-F- C-2011	Fluoride	0.31		mg F/L	P417357	MS
2340532	EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	0.025		mg N/L	P417189	
	EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	1.8		mg N/L	P416707	
	EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	0.005	I	mg N/L	P416860	
2340539	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P416532	
2340546	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P416707	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P416692	
	SM 5310 B-2011	Organic Carbon	30		mg C/L	P416723	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416508

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0 dissolved
Batch ID: P417189

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416463

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416621

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416707

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416463

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416621

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416707

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

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P416860

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: P416692

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P416532

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

Reference Method: SM 2320 B-2011
Batch ID: P416839

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

Reference Method: SM 2320 B-2011
Batch ID: P417020

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

Reference Method: SM 2540 D-2011
Batch ID: P416818

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P416820

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P416821

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417024

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417357

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: P416650

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

Reference Method: SM 5310 B-2011
Batch ID: P416723

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

Reference Method: SM 5310 B-2011
Batch ID: P416760

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: P416508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0 dissolved
Batch ID: P417189

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416463

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416707

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: P416463

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416707

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

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P416860

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: P416692

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P416532

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

Reference Method: SM 2320 B-2011

Batch ID: P416839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	94 - 106

Reference Method: SM 2320 B-2011

Batch ID: P417020

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

Reference Method: SM 4500-F- C-2011

Batch ID: P417024

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 4500-F- C-2011

Batch ID: P417357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	96 - 104

Reference Method: SM 5310 B-2011

Batch ID: P416650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P416723

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

Reference Method: SM 5310 B-2011

Batch ID: P416760

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0 dissolved
Batch ID: P417189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340532	Ammonia-N	96.0	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340111	Kjeldahl Nitrogen	108	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340542	Kjeldahl Nitrogen	101	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340326	Kjeldahl Nitrogen	97.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340111	Kjeldahl Nitrogen	108	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340542	Kjeldahl Nitrogen	101	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved
Batch ID: P416707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340326	Kjeldahl Nitrogen	97.8	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P416860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341947	NO2NO3-N	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340929	Total-P	93.8	93.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P416532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340534	O-Phosphate-P	96.7	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341209	Fluoride	100	99.7	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340221	Fluoride	103	104	P/F	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P416650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340326	Organic Carbon	93.7	92.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P416723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2340375	Organic Carbon	100	100	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P416760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341210	Organic Carbon	89.1	89.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P416508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340523	Turbidity	2.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0 dissolved

Batch ID: P417189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340532	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P416463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340111	Kjeldahl Nitrogen	7.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P416621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340542	Kjeldahl Nitrogen	1.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P416707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340326	Kjeldahl Nitrogen	0.163	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P416463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340111	Kjeldahl Nitrogen	7.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P416621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340542	Kjeldahl Nitrogen	1.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Batch ID: P416707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340326	Kjeldahl Nitrogen	0.163	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0 dissolved
Batch ID: P416860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341947	NO2NO3-N	1.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340929	Total-P	0.747	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P416532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340534	O-Phosphate-P	3.04	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P416839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340697	Total Alkalinity	1.00	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P417020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341209	Total Alkalinity	2.90	Sample	P	0 - 3.8

Reference Method: SM 2540 D-2011
Batch ID: P416820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340136	TSS	8.45	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P416821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340524	TSS	2.67	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341209	Fluoride	0.483	Spike	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P417357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340221	Fluoride	0.953	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P416650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340326	Organic Carbon	1.22	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P416723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2340375	Organic Carbon	0.0996	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P416760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341210	Organic Carbon	0.105	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113445

Included Lab Sample IDs: 2340519, 2340520, 2340521, 2340522, 2340523, 2340524, 2340525

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A113453

Included Lab Sample IDs: 2340533, 2340534, 2340535, 2340536, 2340537, 2340538, 2340539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.0	P/P	90 - 110
O-Phosphate-P	98.0	95.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113499

Included Lab Sample IDs: 2340540, 2340541, 2340542, 2340543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.2	91.6	P/P	90 - 110
Organic Carbon	94.4	92.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113524

Included Lab Sample IDs: 2340540

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A113524

Included Lab Sample IDs: 2340526, 2340527

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

Reference Method: SM 5310 B-2011

Run ID: A113531

Included Lab Sample IDs: 2340546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	97.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113546

Included Lab Sample IDs: 2340544, 2340545

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	91.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113561

Included Lab Sample IDs: 2340541

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113566

Included Lab Sample IDs: 2340542, 2340543, 2340544, 2340545

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

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A113566

Included Lab Sample IDs: 2340528, 2340529, 2340530, 2340531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A113576

Included Lab Sample IDs: 2340525

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113581

Included Lab Sample IDs: 2340546

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113582

Included Lab Sample IDs: 2340546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0 dissolved

Run ID: A113582

Included Lab Sample IDs: 2340532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113583

Included Lab Sample IDs: 2340540, 2340541, 2340542, 2340543, 2340544, 2340545

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0 dissolved

Run ID: A113585

Included Lab Sample IDs: 2340526, 2340527, 2340528, 2340529, 2340530, 2340531, 2340532

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

Reference Method: SM 2320 B-2011

Run ID: A113658

Included Lab Sample IDs: 2340519, 2340520, 2340521, 2340522, 2340523, 2340524

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113658

Included Lab Sample IDs: 2340519, 2340520, 2340521, 2340522, 2340523, 2340524

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	102	P/P	90 - 110
Fluoride	104	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0 dissolved

Run ID: A113714

Included Lab Sample IDs: 2340526, 2340527, 2340528, 2340529, 2340530, 2340531, 2340532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	97.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113778

Included Lab Sample IDs: 2340525

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	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	MS
EPA 180.1 Rev. 2.0	Turbidity	95.3			2.19	
EPA 350.1 Rev. 2.0 dissolved	Ammonia-N	97.8	96.0	97.8		1.23
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.8	108	95.9		7.47
	Kjeldahl Nitrogen	98.4	101	98.5		1.78
	Kjeldahl Nitrogen	102	97.8	98.0		0.163
EPA 351.2 Rev. 2.0 dissolved	Kjeldahl Nitrogen	98.8	108	95.9		7.47
	Kjeldahl Nitrogen	98.4	101	98.5		1.78
	Kjeldahl Nitrogen	102	97.8	98.0		0.163
EPA 353.2 Rev. 2.0 dissolved	NO2NO3-N	104	103	105		1.81
EPA 365.1 Rev. 2.0	Total-P	103	93.8	93.0		0.747
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	96.7	100		3.04
SM 2320 B-2011	Total Alkalinity	99.5			1.00	
	Total Alkalinity	100			2.90	
SM 2540 D-2011	TSS				8.45	
	TSS				2.67	
SM 4500-F- C-2011	Fluoride	102	100	99.7		0.483
	Fluoride	103	103	104		0.953
SM 5310 B-2011	Organic Carbon	97.0	93.7	92.2		1.22
	Organic Carbon	98.3	100	100		0.0996
	Organic Carbon	98.8	89.1	89.0		0.105

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2340519, 2340520, 2340521, 2340522, 2340523, 2340524, 2340525
EPA 350.1 Rev. 2.0 dissolved	Ammonia, dissolved, in filtered, aqueous matrices as mg N/L	2340526, 2340527, 2340528, 2340529, 2340530, 2340531, 2340532
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2340540, 2340541, 2340542, 2340543, 2340544, 2340545, 2340546
EPA 351.2 Rev. 2.0 dissolved	Total Kjeldahl Nitrogen, dissolved, in filtered, aqueous matrices	2340526, 2340527, 2340528, 2340529, 2340530, 2340531, 2340532
EPA 353.2 Rev. 2.0 dissolved	Nitrite/Nitrate, dissolved, in filtered, aqueous matrices as mg N/L	2340526, 2340527, 2340528, 2340529, 2340530, 2340531, 2340532
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2340540, 2340541, 2340542, 2340543, 2340544, 2340545, 2340546
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2340533, 2340534, 2340535, 2340536, 2340537, 2340538, 2340539
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2340519, 2340520, 2340521, 2340522, 2340523, 2340524, 2340525
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2340519, 2340520, 2340521, 2340522, 2340523, 2340524, 2340525
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2340519, 2340520, 2340521, 2340522, 2340523, 2340524, 2340525
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2340540, 2340541, 2340542, 2340543, 2340544, 2340545, 2340546

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	07/12/2022			07/12/2022 14:05	Khloe J Berg	2340523
	07/12/2022			07/12/2022 14:19	Khloe J Berg	2340519
	07/12/2022			07/12/2022 14:20	Khloe J Berg	2340520
	07/12/2022			07/12/2022 14:21	Khloe J Berg	2340521
	07/12/2022			07/12/2022 14:23	Khloe J Berg	2340522
	07/12/2022			07/12/2022 14:29	Khloe J Berg	2340524
	07/12/2022			07/12/2022 14:31	Khloe J Berg	2340525
EPA 350.1 Rev. 2.0 dissolved	07/12/2022			07/26/2022 14:16	Judith K. Clark	2340532
	07/12/2022			07/26/2022 14:20	Judith K. Clark	2340526
	07/12/2022			07/26/2022 14:21	Judith K. Clark	2340527
	07/12/2022			07/26/2022 14:23	Judith K. Clark	2340528
	07/12/2022			07/26/2022 14:24	Judith K. Clark	2340529
	07/12/2022			07/26/2022 14:25	Judith K. Clark	2340530
EPA 351.2 Rev. 2.0	07/12/2022			07/26/2022 14:27	Judith K. Clark	2340531
	07/12/2022	07/13/2022 14:48	Samantha L Bates	07/14/2022 15:11	Alexandra J Mattheus	2340540
	07/12/2022	07/13/2022 14:48	Samantha L Bates	07/18/2022 12:03	Alexandra J Mattheus	2340541
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:30	Alexandra J Mattheus	2340542
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:34	Alexandra J Mattheus	2340543
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:36	Alexandra J Mattheus	2340544
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:38	Alexandra J Mattheus	2340545
EPA 351.2 Rev. 2.0 dissolved	07/12/2022	07/18/2022 16:27	Samantha L Bates	07/19/2022 12:48	Alexandra J Mattheus	2340546
	07/12/2022	07/13/2022 14:48	Samantha L Bates	07/14/2022 15:07	Alexandra J Mattheus	2340526
	07/12/2022	07/13/2022 14:48	Samantha L Bates	07/14/2022 15:09	Alexandra J Mattheus	2340527
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:20	Alexandra J Mattheus	2340528
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:21	Alexandra J Mattheus	2340529
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:23	Alexandra J Mattheus	2340530
	07/12/2022	07/15/2022 10:00	Samantha L Bates	07/18/2022 13:25	Alexandra J Mattheus	2340531
EPA 353.2 Rev. 2.0 dissolved	07/12/2022	07/18/2022 16:27	Samantha L Bates	07/19/2022 12:30	Alexandra J Mattheus	2340532
	07/12/2022			07/19/2022 15:37	Judith K. Clark	2340526
	07/12/2022			07/19/2022 15:38	Judith K. Clark	2340527
	07/12/2022			07/19/2022 15:40	Judith K. Clark	2340528
	07/12/2022			07/19/2022 15:41	Judith K. Clark	2340529
	07/12/2022			07/19/2022 15:42	Judith K. Clark	2340530
	07/12/2022			07/19/2022 15:43	Judith K. Clark	2340531
EPA 365.1 Rev. 2.0	07/12/2022			07/19/2022 15:44	Judith K. Clark	2340532
	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 11:56	James L Waggeberby	2340546
	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 13:43	James L Waggeberby	2340540
	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 13:44	James L Waggeberby	2340541
	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 13:45	James L Waggeberby	2340542
	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 13:46	James L Waggeberby	2340543

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	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 13:47	James L Waggeberby	2340544
	07/12/2022	07/18/2022 14:52	Adam P Silver	07/19/2022 13:48	James L Waggeberby	2340545
EPA 365.1 Rev. 2.0 dissolved	07/12/2022			07/13/2022 08:01	Chandler E Cox	2340534
	07/12/2022			07/13/2022 08:04	Chandler E Cox	2340533
	07/12/2022			07/13/2022 08:05	Chandler E Cox	2340535
	07/12/2022			07/13/2022 08:06	Chandler E Cox	2340536, 2340537
	07/12/2022			07/13/2022 08:07	Chandler E Cox	2340538
	07/12/2022			07/13/2022 08:12	Chandler E Cox	2340539
SM 2320 B-2011	07/12/2022			07/15/2022 09:58	Dale L. Simmons	2340525
	07/12/2022			07/21/2022 09:51	Dale L. Simmons	2340519
	07/12/2022			07/21/2022 10:04	Dale L. Simmons	2340520
	07/12/2022			07/21/2022 10:18	Dale L. Simmons	2340521
	07/12/2022			07/21/2022 10:31	Dale L. Simmons	2340522
	07/12/2022			07/21/2022 10:44	Dale L. Simmons	2340523
SM 2540 D-2011	07/12/2022			07/21/2022 10:58	Dale L. Simmons	2340524
	07/12/2022			07/13/2022 16:09	Yijie Li	2340519, 2340520, 2340521, 2340522, 2340523, 2340524, 2340525
SM 4500-F- C-2011	07/12/2022			07/21/2022 07:41	Dale L. Simmons	2340519
	07/12/2022			07/21/2022 07:47	Dale L. Simmons	2340520
	07/12/2022			07/21/2022 07:52	Dale L. Simmons	2340521
	07/12/2022			07/21/2022 07:57	Dale L. Simmons	2340522
	07/12/2022			07/21/2022 08:47	Dale L. Simmons	2340523
	07/12/2022			07/21/2022 08:53	Dale L. Simmons	2340524
SM 5310 B-2011	07/12/2022			07/29/2022 06:40	Dale L. Simmons	2340525
	07/12/2022			07/14/2022 06:16	Khloe J Berg	2340540
	07/12/2022			07/14/2022 07:41	Khloe J Berg	2340541
	07/12/2022			07/14/2022 07:54	Khloe J Berg	2340542
	07/12/2022			07/14/2022 08:09	Khloe J Berg	2340543
	07/12/2022			07/14/2022 18:01	Khloe J Berg	2340546
	07/12/2022			07/16/2022 01:19	Khloe J Berg	2340544
	07/12/2022			07/16/2022 01:36	Khloe J Berg	2340545