

Chemical Analysis Report

SE-DIST-2022-05-13-01

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

Event Description: **Palm Beach/Tidal Lox and Deployment Pickup**

Request ID: **RQ-2022-05-09-54**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 09-JUN-2022 11:31



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: C-51 @ Forest Hill Blvd

Collection Date/Time: 05/12/2022 08:30

Field ID: G3SE0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2326774	DEP SOP: NU-094-1	Color (true)**	53	A	PCU	P413817	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P413821	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P414106	
		Sulfate	59		mg SO4/L	P414110	
	SM 2320 B-2011	Total Alkalinity	191		mg CaCO3/L	P414066	
	SM 2540 C-2011	TDS	481		mg/L	P414397	
	SM 2540 D-2011	TSS	3	I	mg/L	P414312	
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P414069	MS
2326775	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P414331	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P414146	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P414228	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P413997	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P413909	

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: Tidal Creek to Lox

Collection Date/Time: 05/12/2022 09:15

Field ID: G2SE0027

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2326776	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P413821	
	SM 2320 B-2011	Total Alkalinity	122		mg CaCO3/L	P414062	RPD
	SM 2540 D-2011	TSS	6	IA	mg/L	P414316	
	SM 4500-F- C-2011	Fluoride	1.0		mg F/L	P414063	
2326778	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P414159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P414007	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P414015	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P413995	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P414053	

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: Bessey Creek @ Murphy

Collection Date/Time: 05/12/2022 10:05

Field ID: G2SE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2326777	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P413821	
	SM 2320 B-2011	Total Alkalinity	171		mg CaCO3/L	P414062	RPD
	SM 2540 D-2011	TSS	8	I	mg/L	P414316	
	SM 4500-F- C-2011	Fluoride	0.57		mg F/L	P414063	
2326779	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P414159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P414076	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P414015	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P413995	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P414053	

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: DEP SOP: NU-094-1
Batch ID: P413817

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413821

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414106

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414110

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414159

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414331

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414007

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414076

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414146

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: P414015

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414228

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413995

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413997

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

Reference Method: SM 2320 B-2011
Batch ID: P414062

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

Reference Method: SM 2320 B-2011
Batch ID: P414066

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

Reference Method: SM 2540 C-2011
Batch ID: P414397

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P414312

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P414316

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P414063

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P414069

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P413909

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

Reference Method: SM 5310 B-2011
Batch ID: P414053

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: P413817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413821

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414106

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414110

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414159

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414076

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414146

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414228

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413995

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413997

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

Reference Method: SM 2320 B-2011
Batch ID: P414062

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.5		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P414066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P414063

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P414069

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P413909

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P414053

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326976	Chloride	102		P	90 - 110
2327287	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326976	Sulfate	99.0		P	90 - 110
2327287	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326510	Ammonia-N	102	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326840	Ammonia-N	94.6	94.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2325548	Kjeldahl Nitrogen	95.4	94.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326779	Kjeldahl Nitrogen	96.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2325443	Kjeldahl Nitrogen	99.3	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326778	NO2NO3-N	98.7	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326775	NO2NO3-N	97.7	97.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413995

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326760	Total-P	99.6	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326775	Total-P	104	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P414063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326861	Fluoride	97.7	98.4	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P414069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2327113	Fluoride	106	107	F/F	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P413909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326703	Organic Carbon	96.6	97.9	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P414053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2326872	Organic Carbon	93.2	94.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P413817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326774	Color (true)	2.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P413821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326735	Turbidity	2.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326976	Chloride	2.95	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P414110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326976	Sulfate	1.71	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326510	Ammonia-N	3.10	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P414331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326840	Ammonia-N	0.371	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2325548	Kjeldahl Nitrogen	0.861	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326779	Kjeldahl Nitrogen	4.09	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P414146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2325443	Kjeldahl Nitrogen	1.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326778	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P414228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326775	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326760	Total-P	0.289	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P413997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326775	Total-P	0.186	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P414062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326861	Total Alkalinity	5.27	Sample	F	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P414066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2327113	Total Alkalinity	0.591	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P414397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326674	TDS	5.46	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P414063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326861	Fluoride	0.476	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P414069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2327113	Fluoride	0.490	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P413909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326703	Organic Carbon	0.925	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P414053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2326872	Organic Carbon	1.61	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: A112123

Included Lab Sample IDs: 2326774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.3	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A112131

Included Lab Sample IDs: 2326774, 2326776, 2326777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: SM 5310 B-2011

Run ID: A112187

Included Lab Sample IDs: 2326775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A112198

Included Lab Sample IDs: 2326774

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A112220

Included Lab Sample IDs: 2326778, 2326779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A112239

Included Lab Sample IDs: 2326778, 2326779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	98.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A112241

Included Lab Sample IDs: 2326776, 2326777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	99.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A112241

Included Lab Sample IDs: 2326776, 2326777

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A112241

Included Lab Sample IDs: 2326776, 2326777

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

Reference Method: SM 2320 B-2011

Run ID: A112245

Included Lab Sample IDs: 2326774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	97.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A112245

Included Lab Sample IDs: 2326774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112288

Included Lab Sample IDs: 2326778, 2326779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112297

Included Lab Sample IDs: 2326778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A112305

Included Lab Sample IDs: 2326775, 2326779

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112314

Included Lab Sample IDs: 2326778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A112329

Included Lab Sample IDs: 2326775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112360

Included Lab Sample IDs: 2326775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.9	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112419

Included Lab Sample IDs: 2326775, 2326779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	106	P/P	90 - 110
Kjeldahl Nitrogen	107	102	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
DEP SOP: NU-094-1	Color (true)	98.4			2.65	
EPA 180.1 Rev. 2.0	Turbidity	97.2			2.12	
EPA 300.0 Rev. 2.1	Chloride	101	102	102	2.95	
	Sulfate	99.5	99.0	97.8	1.71	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	102	106		3.10
	Ammonia-N	94.2	94.6	94.2		0.371
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.5	95.4	94.4		0.861
	Kjeldahl Nitrogen	99.1	96.8	102		4.09
	Kjeldahl Nitrogen	102	99.3	97.5		1.30
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	98.7	98.7		0.0
	NO2NO3-N	98.5	97.7	97.2		0.494
EPA 365.1 Rev. 2.0	Total-P	98.1	99.6	99.9		0.289
	Total-P	102	104	104		0.186
SM 2320 B-2011	Total Alkalinity	94.5			5.27	
	Total Alkalinity	99.6			0.591	
SM 2540 C-2011	TDS				5.46	
SM 4500-F- C-2011	Fluoride	97.1	97.7	98.4		0.476
	Fluoride	99.4	106	107		0.490
SM 5310 B-2011	Organic Carbon	96.5	96.6	97.9		0.925
	Organic Carbon	102	93.2	94.9		1.61

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2326774
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2326774, 2326776, 2326777
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2326774
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2326774
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2326775, 2326778, 2326779
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2326775, 2326778, 2326779
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2326775, 2326778, 2326779
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2326775, 2326778, 2326779
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2326774, 2326776, 2326777
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2326774
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2326774, 2326776, 2326777
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2326774, 2326776, 2326777
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2326775, 2326778, 2326779

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	05/13/2022			05/13/2022 12:24	Samantha L Bates	2326774
EPA 180.1 Rev. 2.0	05/13/2022			05/13/2022 13:21	Anna M. Plaviak	2326774
	05/13/2022			05/13/2022 13:23	Anna M. Plaviak	2326776
	05/13/2022			05/13/2022 13:25	Anna M. Plaviak	2326777
EPA 300.0 Rev. 2.1	05/13/2022			05/19/2022 06:57	Anna M. Plaviak	2326774
EPA 350.1 Rev. 2.0	05/13/2022			05/20/2022 09:57	Judith K. Clark	2326778
	05/13/2022			05/20/2022 09:59	Judith K. Clark	2326779
	05/13/2022			05/24/2022 13:54	Ping Hua	2326775
EPA 351.2 Rev. 2.0	05/13/2022	05/19/2022 15:12	Samantha L Bates	05/20/2022 14:51	Samantha L Bates	2326778
	05/13/2022	05/24/2022 09:04	Samantha L Bates	05/25/2022 11:15	Alexandra J Mattheus	2326775
	05/13/2022	05/25/2022 11:36	Samantha L Bates	05/25/2022 13:10	Alexandra J Mattheus	2326779
EPA 353.2 Rev. 2.0	05/13/2022			05/18/2022 10:10	Beverly Y. Sanders	2326778
	05/13/2022			05/18/2022 10:16	Beverly Y. Sanders	2326779
	05/13/2022			05/23/2022 10:22	Beverly Y. Sanders	2326775
EPA 365.1 Rev. 2.0	05/13/2022	05/19/2022 14:04	Simonne.V. Calhoun	05/20/2022 12:30	Sarah A Nixon	2326779
	05/13/2022	05/19/2022 14:04	Simonne.V. Calhoun	05/20/2022 12:51	Sarah A Nixon	2326775
	05/13/2022	05/19/2022 14:04	Simonne.V. Calhoun	05/20/2022 14:42	James L Waggeberby	2326778
SM 2320 B-2011	05/13/2022			05/17/2022 22:07	Dale L. Simmons	2326776
	05/13/2022			05/17/2022 22:21	Dale L. Simmons	2326777
	05/13/2022			05/18/2022 20:30	Dale L. Simmons	2326774
SM 2540 C-2011	05/13/2022			05/18/2022 14:36	Yijie Li	2326774
SM 2540 D-2011	05/13/2022			05/18/2022 14:36	Yijie Li	2326774, 2326776, 2326777
SM 4500-F- C-2011	05/13/2022			05/17/2022 18:22	Dale L. Simmons	2326776
	05/13/2022			05/17/2022 18:28	Dale L. Simmons	2326777
	05/13/2022			05/18/2022 20:30	Dale L. Simmons	2326774
SM 5310 B-2011	05/13/2022			05/16/2022 18:19	Khloe J Berg	2326775
	05/13/2022			05/18/2022 20:52	Judith K. Clark	2326778
	05/13/2022			05/18/2022 21:10	Judith K. Clark	2326779