Chemical Analysis Report

NE-DIST-2021-04-28-02

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

Event Description: **Vilano Boat**
Request ID: **RQ-2021-04-26-14**
Customer: **NE-DIST**
Project ID: **SMP**

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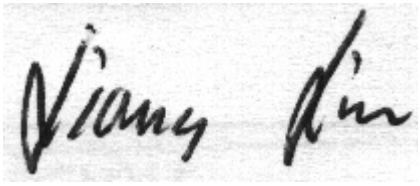
Date Certified: 14-MAY-2021 11:39



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: Salt Run Offshore from Lighthouse **Collection Date/Time: 04/27/2021 11:00**

Field ID: 27010138 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2243400	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P397353	
	SM 2320 B-2011	Total Alkalinity	118		mg CaCO3/L	P397927	
	SM 2540 D-2011	TSS	15		mg/L	P397596	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P397526	
2243403	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P397634	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P397547	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P397475	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P397441	
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P397751	
2243406	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P397348	

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: Ximanies CR ~ 1 Mi Upstrm of Mouth **Collection Date/Time: 04/27/2021 11:45**

Field ID: 27010968 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2243401	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P397353	
	SM 2320 B-2011	Total Alkalinity	115		mg CaCO3/L	P397927	
	SM 2540 D-2011	TSS	21		mg/L	P397596	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P397526	
2243404	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P397634	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P397547	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P397475	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P397441	
	SM 5310 B-2011	Organic Carbon	4.0		mg C/L	P397483	
2243407	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P397348	

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: Sombrero Creek 50M Below Fork **Collection Date/Time: 04/27/2021 12:30**

Field ID: 27010054 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2243402	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P397353	
	SM 2320 B-2011	Total Alkalinity	114		mg CaCO3/L	P397927	
	SM 2540 D-2011	TSS	36		mg/L	P397596	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P397526	
2243405	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P397989	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P397547	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P397475	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P397607	
	SM 5310 B-2011	Organic Carbon	4.5		mg C/L	P397483	
2243408	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P397348	

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: St. Augustine Inlet SE of Vilano Bt Rmp **Collection Date/Time: 04/27/2021 13:05**

Field ID: G5NE0587 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2243409	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P397353	
	SM 2320 B-2011	Total Alkalinity	114		mg CaCO3/L	P397927	
	SM 2540 D-2011	TSS	14		mg/L	P397596	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P397526	
2243410	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P397989	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P397548	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P397475	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P397607	
	SM 5310 B-2011	Organic Carbon	2.4		mg C/L	P397483	
2243411	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P397348	

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: P397353

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397634

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397989

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397547

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397548

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397475

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397441

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397607

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397348

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P397927

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

Reference Method: SM 2540 D-2011
Batch ID: P397596

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P397526

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397483

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

Reference Method: SM 5310 B-2011
Batch ID: P397751

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397634

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397547

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397548

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397441

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397607

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P397927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P397526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P397483

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

Reference Method: SM 5310 B-2011
Batch ID: P397751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243029	Ammonia-N	98.4	95.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243405	Ammonia-N	107	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243029	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243410	Kjeldahl Nitrogen	101	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243403	NO2NO3-N	96.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243354	Total-P	98.2	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243679	Total-P	97.6	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243356	O-Phosphate-P	97.3	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P397526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243400	Fluoride	95.5	98.4	P/P	94 - 107

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P397483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2243404	Organic Carbon	92.4	94.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P397751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2244325	Organic Carbon	95.9	97.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P397353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243392	Turbidity	8.92	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243029	Ammonia-N	2.84	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243405	Ammonia-N	0.782	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243029	Kjeldahl Nitrogen	0.0303	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243410	Kjeldahl Nitrogen	5.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243403	NO2NO3-N	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243354	Total-P	1.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P397607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243679	Total-P	1.40	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P397348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243356	O-Phosphate-P	1.43	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P397927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243103	Total Alkalinity	1.66	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P397526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243400	Fluoride	1.85	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P397483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2243404	Organic Carbon	1.98	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P397751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2244325	Organic Carbon	1.18	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: A105061
Included Lab Sample IDs: 2243406, 2243407, 2243408, 2243411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A105062
Included Lab Sample IDs: 2243400, 2243401, 2243402, 2243409

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A105106
Included Lab Sample IDs: 2243403, 2243404, 2243405, 2243410

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

Reference Method: SM 5310 B-2011
Run ID: A105109
Included Lab Sample IDs: 2243404, 2243405, 2243410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.7	95.0	P/P	90 - 110
Organic Carbon	95.8	95.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105117
Included Lab Sample IDs: 2243403, 2243404

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A105119
Included Lab Sample IDs: 2243400, 2243401, 2243402, 2243409

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A105131
Included Lab Sample IDs: 2243403, 2243404

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105166
Included Lab Sample IDs: 2243403, 2243404, 2243410

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105166
Included Lab Sample IDs: 2243403, 2243404, 2243410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	106	P/P	90 - 110
Kjeldahl Nitrogen	97.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A105184
Included Lab Sample IDs: 2243405, 2243410

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105188
Included Lab Sample IDs: 2243405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	98.4	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A105220
Included Lab Sample IDs: 2243403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.2	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A105297
Included Lab Sample IDs: 2243400, 2243401, 2243402, 2243409

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105340
Included Lab Sample IDs: 2243405, 2243410

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

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					8.92	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	98.4	95.2			2.84
	Ammonia-N	99.4	107	108			0.782
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	107	107			0.0303
	Kjeldahl Nitrogen	104	101	107			5.10
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	96.2	98.2			1.99
EPA 365.1 Rev. 2.0	Total-P	109	98.2	99.4			1.18
	Total-P	104	97.6	99.1			1.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	97.3	95.8			1.43
SM 2320 B-2011	Total Alkalinity	100				1.66	
SM 4500 F-C-2011	Fluoride	100	95.5	98.4			1.85
SM 5310 B-2011	Organic Carbon	95.2	92.4	94.5			1.98
	Organic Carbon	95.8	95.9	97.2			1.18

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2243400, 2243401, 2243402, 2243409
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2243403, 2243404, 2243405, 2243410
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2243403, 2243404, 2243405, 2243410
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2243403, 2243404, 2243405, 2243410
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2243403, 2243404, 2243405, 2243410
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2243406, 2243407, 2243408, 2243411
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2243400, 2243401, 2243402, 2243409
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2243400, 2243401, 2243402, 2243409
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2243400, 2243401, 2243402, 2243409
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2243403, 2243404, 2243405, 2243410

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	04/28/2021			04/28/2021 16:51	Sarah A Nixon	2243400, 2243401, 2243402, 2243409
EPA 350.1 Rev. 2.0	04/28/2021			05/04/2021 18:16	Ping Hua	2243404
	04/28/2021			05/04/2021 18:20	Ping Hua	2243403
	04/28/2021			05/11/2021 13:17	Ping Hua	2243405
	04/28/2021			05/11/2021 13:21	Ping Hua	2243410
EPA 351.2 Rev. 2.0	04/28/2021	05/03/2021 13:05	Benjamin T. Nordmann	05/04/2021 12:08	Virginia P. Brown	2243410
	04/28/2021	05/03/2021 13:05	Benjamin T. Nordmann	05/04/2021 13:40	Virginia P. Brown	2243403
	04/28/2021	05/03/2021 13:05	Benjamin T. Nordmann	05/04/2021 13:42	Virginia P. Brown	2243404
	04/28/2021	05/03/2021 13:05	Benjamin T. Nordmann	05/05/2021 11:35	Virginia P. Brown	2243405
EPA 353.2 Rev. 2.0	04/28/2021			04/30/2021 13:15	Touraj Touran	2243403
	04/28/2021			04/30/2021 13:22	Touraj Touran	2243404
	04/28/2021			04/30/2021 13:23	Touraj Touran	2243405
	04/28/2021			04/30/2021 13:24	Touraj Touran	2243410
EPA 365.1 Rev. 2.0	04/28/2021	04/29/2021 15:25	Yen Ta	05/03/2021 13:14	Shengyu Ding	2243403
	04/28/2021	04/29/2021 15:25	Yen Ta	05/03/2021 13:15	Shengyu Ding	2243404
	04/28/2021	05/04/2021 12:55	Yen Ta	05/05/2021 12:14	Shengyu Ding	2243405
	04/28/2021	05/04/2021 12:55	Yen Ta	05/05/2021 12:21	Shengyu Ding	2243410
EPA 365.1 Rev. 2.0 dissolved	04/28/2021			04/28/2021 15:46	Patrick M. Roche	2243406
	04/28/2021			04/28/2021 15:47	Patrick M. Roche	2243407
	04/28/2021			04/28/2021 15:48	Patrick M. Roche	2243408
	04/28/2021			04/28/2021 15:49	Patrick M. Roche	2243411
SM 2320 B-2011	04/28/2021			05/11/2021 02:16	Dale L. Simmons	2243400
	04/28/2021			05/11/2021 02:28	Dale L. Simmons	2243401
	04/28/2021			05/11/2021 02:40	Dale L. Simmons	2243402
	04/28/2021			05/11/2021 02:51	Dale L. Simmons	2243409
SM 2540 D-2011	04/28/2021			04/30/2021 15:17	Yijie Li	2243400, 2243401, 2243402, 2243409
SM 4500 F-C-2011	04/28/2021			05/02/2021 10:56	Dale L. Simmons	2243400
	04/28/2021			05/02/2021 12:05	Dale L. Simmons	2243401
	04/28/2021			05/02/2021 12:10	Dale L. Simmons	2243402
	04/28/2021			05/02/2021 12:16	Dale L. Simmons	2243409
SM 5310 B-2011	04/28/2021			04/30/2021 04:15	Madeline Gruver	2243404
	04/28/2021			04/30/2021 10:08	Madeline Gruver	2243405
	04/28/2021			04/30/2021 11:01	Madeline Gruver	2243410
	04/28/2021			05/06/2021 07:46	Madeline Gruver	2243403