

Chemical Analysis Report

NW-DIST-2021-03-17-01

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

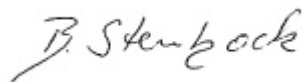
Event Description: **Perdido Bayou Run**
Request ID: **RQ-2021-03-15-49**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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

Date Certified: 09-APR-2021 16:10



NON-CONFORMANCE REPORT INCLUDED

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: Bayou Garcon

Collection Date/Time: 03/15/2021 11:48

Field ID: G5NW0152

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232025	EPA 180.1 Rev. 2.0	Turbidity	2.2	Q	NTU	P395106	
	EPA 300.0 Rev. 2.1	Bromide	47		mg Br/L	P395413	
	SM 2320 B-2011	Total Alkalinity	78		mg CaCO3/L	P395230	
	SM 2540 D-2011	TSS	3	I	mg/L	P395604	
	SM 4500 F-C-2011	Fluoride	0.85		mg F/L	P395234	
2232028	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P395256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P395469	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P395209	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P395211	
	SM 5310 B-2011	Organic Carbon	3.7		mg C/L	P395502	
2232031	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I Q	mg P/L	P395136	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Weekly Bayou Creek @ County Rd. 293

Collection Date/Time: 03/15/2021 10:05

Field ID: G5NW0163

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232026	EPA 180.1 Rev. 2.0	Turbidity	1.1	Q	NTU	P395106	
	EPA 300.0 Rev. 2.1	Bromide	2.9		mg Br/L	P395577	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P395230	
	SM 2540 D-2011	TSS	3	U	mg/L	P395604	
	SM 4500 F-C-2011	Fluoride	0.054	I	mg F/L	P395332	
2232029	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P395256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P395469	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P395209	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P395211	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P395502	
2232032	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P395136	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Weekly Bayou Middle Portion

Collection Date/Time: 03/15/2021 11:10

Field ID: G5NW0157

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232027	EPA 180.1 Rev. 2.0	Turbidity	1.8	Q	NTU	P395106	
	EPA 300.0 Rev. 2.1	Bromide	35		mg Br/L	P395413	
	SM 2320 B-2011	Total Alkalinity	62		mg CaCO3/L	P395230	
	SM 2540 D-2011	TSS	3	U	mg/L	P395604	
	SM 4500 F-C-2011	Fluoride	0.66		mg F/L	P395234	
2232030	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P395256	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P395469	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P395209	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P395211	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P395502	
2232033	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I Q	mg P/L	P395136	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: FB_03152021

Collection Date/Time: 03/15/2021 11:55

Field ID: FB_03152021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2232034	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P395106	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P395413	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P395227	
	SM 2540 D-2011	TSS	2	U	mg/L	P395601	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P395233	
2232035	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P395313	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P395415	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P395128	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P395481	
	SM 5310 B-2011	Organic Carbon	0.71	I	mg C/L	P395580	
2232036	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P395131	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

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

SM 5310 B-2011: The result was confirmed on 03/30/2021.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 8723

Event(s)

NW-DIST-2021-03-17-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one day late by FedEx, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.
Customer contacted (M.King)
Biology and Chemistry supervisors were notified by email.

Authorized by/Date: Joshua Ayres 4/1/2021

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395106

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395413

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395577

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395256

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395313

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395415

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395469

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395128

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395209

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: P395211

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395481

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395131

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395136

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

Reference Method: SM 2320 B-2011
Batch ID: P395227

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

Reference Method: SM 2320 B-2011
Batch ID: P395230

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

Reference Method: SM 2540 D-2011
Batch ID: P395601

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395604

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395233

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P395234

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P395502

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

Reference Method: SM 5310 B-2011
Batch ID: P395580

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395413

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	92.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395256

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395313

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395415

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395469

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395128

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395209

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395481

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: P395131

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: P395136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P395227

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P395230

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P395233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P395234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	104		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P395502

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: P395580

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231575	Bromide	103	102	P/P	90 - 110
2232292	Bromide	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2233097	Bromide	97.7	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232028	Ammonia-N	98.8	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232018	Ammonia-N	96.0	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231952	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232028	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232046	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232028	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231905	Total-P	97.0	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P395481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231962	Total-P	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231899	O-Phosphate-P	97.3	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P395136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231980	O-Phosphate-P	97.2	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Batch ID: P395233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232044	Fluoride	101	102	P/P	94 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P395234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2231626	Fluoride	102	103	P/P	94 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P395332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232751	Fluoride	98.3	98.3	P/P	94 - 107

Reference Method: SM 5310 B-2011

Batch ID: P395502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232839	Organic Carbon	93.4	94.1	P/P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P395580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2232047	Organic Carbon	96.7	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P395106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231992	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231575	Bromide	1.21	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P395577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2233097	Bromide	3.21	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232028	Ammonia-N	0.187	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P395313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232018	Ammonia-N	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231952	Kjeldahl Nitrogen	2.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P395469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232028	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232046	NO2NO3-N	0.496	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P395209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232028	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231905	Total-P	2.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P395481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231962	Total-P	1.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231899	O-Phosphate-P	1.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P395136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231980	O-Phosphate-P	0.892	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P395227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232044	Total Alkalinity	0.136	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P395230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231626	Total Alkalinity	0.539	Sample	P	0 - 8.1

Reference Method: SM 2540 D-2011
Batch ID: P395604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231904	TSS	7.59	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P395233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232044	Fluoride	0.462	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P395234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2231626	Fluoride	0.448	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P395332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232751	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P395502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232839	Organic Carbon	0.563	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P395580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2232047	Organic Carbon	0.164	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: A104110

Included Lab Sample IDs: 2232025, 2232026, 2232027, 2232034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104129

Included Lab Sample IDs: 2232035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104131

Included Lab Sample IDs: 2232031, 2232032, 2232033, 2232036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.0	96.3	P/P	90 - 110
O-Phosphate-P	96.3	95.6	P/P	90 - 110
O-Phosphate-P	97.4	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104161

Included Lab Sample IDs: 2232028, 2232029, 2232030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104172

Included Lab Sample IDs: 2232025, 2232026, 2232027, 2232034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.9	102	P/P	90 - 110
Total Alkalinity	98.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104172

Included Lab Sample IDs: 2232025, 2232027, 2232034

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104180

Included Lab Sample IDs: 2232028, 2232029, 2232030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104200

Included Lab Sample IDs: 2232028, 2232029, 2232030

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104204

Included Lab Sample IDs: 2232035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104210

Included Lab Sample IDs: 2232026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104244

Included Lab Sample IDs: 2232025, 2232026, 2232027, 2232034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	105	101	P/P	90 - 110
Bromide	97.8	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104280

Included Lab Sample IDs: 2232028, 2232029, 2232030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	95.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104295

Included Lab Sample IDs: 2232035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.1	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104298

Included Lab Sample IDs: 2232035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104307

Included Lab Sample IDs: 2232028, 2232029, 2232030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A104316

Included Lab Sample IDs: 2232035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.9	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.0	
EPA 300.0 Rev. 2.1	Bromide	101	103	102	98.9		1.21
	Bromide	92.6	97.7	102			3.21
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	98.8	98.6			0.187
	Ammonia-N	99.8	96.0	97.4			1.19
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	103	100			2.16
	Kjeldahl Nitrogen	103	105	106			1.09
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	101			0.496
	NO2NO3-N	103	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	106	97.0	100			2.06
	Total-P	105	106	104			1.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.8	97.3	98.7			1.14
	O-Phosphate-P	96.5	97.2	98.2			0.892
SM 2320 B-2011	Total Alkalinity	99.9				0.136	
	Total Alkalinity	101				0.539	
SM 2540 D-2011	TSS					7.59	
SM 4500 F-C-2011	Fluoride	103	101	102			0.462
	Fluoride	104	102	103			0.448
	Fluoride	99.2	98.3	98.3			0.0
SM 5310 B-2011	Organic Carbon	96.5	93.4	94.1			0.563
	Organic Carbon	95.2	96.7	96.4			0.164

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2232025, 2232026, 2232027, 2232034
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2232025, 2232026, 2232027, 2232034
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2232028, 2232029, 2232030, 2232035
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2232028, 2232029, 2232030, 2232035
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2232028, 2232029, 2232030, 2232035
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2232028, 2232029, 2232030, 2232035
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2232031, 2232032, 2232033, 2232036
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2232025, 2232026, 2232027, 2232034
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2232025, 2232026, 2232027, 2232034
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2232025, 2232026, 2232027, 2232034
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2232028, 2232029, 2232030, 2232035

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	03/17/2021			03/17/2021 15:32	Yen Ta	2232025, 2232026, 2232027, 2232034
EPA 300.0 Rev. 2.1	03/17/2021			03/23/2021 03:04	Lipi Saha	2232025
	03/17/2021			03/23/2021 03:41	Lipi Saha	2232027
	03/17/2021			03/23/2021 03:59	Lipi Saha	2232034
	03/17/2021			03/25/2021 16:33	Lipi Saha	2232026
EPA 350.1 Rev. 2.0	03/17/2021			03/20/2021 14:47	Ping Hua	2232028
	03/17/2021			03/20/2021 14:51	Ping Hua	2232029
	03/17/2021			03/20/2021 14:52	Ping Hua	2232030
	03/17/2021			03/22/2021 18:28	Ping Hua	2232035
EPA 351.2 Rev. 2.0	03/17/2021	03/24/2021 12:15	Benjamin T. Nordmann	03/25/2021 19:33	Julia Storbeck	2232035
	03/17/2021	03/25/2021 12:00	Benjamin T. Nordmann	03/26/2021 14:23	Julia Storbeck	2232028
	03/17/2021	03/25/2021 12:00	Benjamin T. Nordmann	03/26/2021 14:28	Julia Storbeck	2232029
	03/17/2021	03/25/2021 12:00	Benjamin T. Nordmann	03/26/2021 14:30	Julia Storbeck	2232030
EPA 353.2 Rev. 2.0	03/17/2021			03/18/2021 09:46	Beverly Y. Sanders	2232035
	03/17/2021			03/19/2021 10:49	Beverly Y. Sanders	2232028
	03/17/2021			03/19/2021 10:55	Beverly Y. Sanders	2232029
	03/17/2021			03/19/2021 10:56	Beverly Y. Sanders	2232030
EPA 365.1 Rev. 2.0	03/17/2021	03/19/2021 12:46	Yen Ta	03/22/2021 14:37	Shengyu Ding	2232028
	03/17/2021	03/19/2021 12:46	Yen Ta	03/22/2021 14:38	Shengyu Ding	2232029
	03/17/2021	03/19/2021 12:46	Yen Ta	03/22/2021 14:39	Shengyu Ding	2232030
	03/17/2021	03/25/2021 12:45	Yen Ta	03/26/2021 12:34	Shengyu Ding	2232035
EPA 365.1 Rev. 2.0 dissolved	03/17/2021			03/17/2021 19:49	Patrick M. Roche	2232036
	03/17/2021			03/17/2021 21:31	Patrick M. Roche	2232031
	03/17/2021			03/17/2021 21:36	Patrick M. Roche	2232032
	03/17/2021			03/17/2021 21:37	Patrick M. Roche	2232033
SM 2320 B-2011	03/17/2021			03/19/2021 08:16	Dale L. Simmons	2232034
	03/17/2021			03/19/2021 12:53	Dale L. Simmons	2232025
	03/17/2021			03/19/2021 13:02	Dale L. Simmons	2232026
	03/17/2021			03/19/2021 13:17	Dale L. Simmons	2232027
SM 2540 D-2011	03/17/2021			03/19/2021 15:21	Yijie Li	2232025, 2232026, 2232027, 2232034
SM 4500 F-C-2011	03/17/2021			03/19/2021 08:16	Dale L. Simmons	2232034
	03/17/2021			03/19/2021 11:02	Dale L. Simmons	2232025
	03/17/2021			03/19/2021 11:56	Dale L. Simmons	2232027
	03/17/2021			03/22/2021 22:04	Dale L. Simmons	2232026
SM 5310 B-2011	03/17/2021			03/25/2021 11:11	Madeline Gruver	2232028
	03/17/2021			03/25/2021 12:03	Madeline Gruver	2232029
	03/17/2021			03/25/2021 12:56	Madeline Gruver	2232030
	03/17/2021			03/26/2021 22:17	Madeline Gruver	2232035