

Chemical Analysis Report

NW-DIST-2021-02-17-01

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-2021-02-15-29**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 Government Center
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Pensacola, FL 32502-5794
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 10-MAR-2021 18:15



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: 02/16/2021 14:20

Field ID: G5NW0152

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225753	EPA 180.1 Rev. 2.0	Turbidity	3.5	A	NTU	P393914	
	EPA 300.0 Rev. 2.1	Bromide	17		mg Br/L	P394128	
	SM 2320 B-2011	Total Alkalinity	33	A	mg CaCO3/L	P394162	
	SM 2540 D-2011	TSS	3	UA	mg/L	P394344	
	SM 4500 F-C-2011	Fluoride	0.30		mg F/L	P394165	
2225754	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P394189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P394018	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P394076	
	EPA 365.1 Rev. 2.0	Total-P	0.004	U	mg P/L	P393924	
	SM 5310 B-2011	Organic Carbon	9.2		mg C/L	P394374	
2225755	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393908	

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: FB_02162021

Collection Date/Time: 02/16/2021 14:30

Field ID: FB_02162021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225756	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P393914	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P394128	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P394363	
	SM 2540 D-2011	TSS	2	U	mg/L	P394343	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P394150	
2225757	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P394292	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P394017	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P393938	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P393926	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P394586	
2225758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393907	

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: P393914

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394128

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394189

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394292

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394017

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394018

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393938

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394076

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393924

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393926

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393907

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393908

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

Reference Method: SM 2320 B-2011
Batch ID: P394162

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-2011
Batch ID: P394363

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-2011
Batch ID: P394343

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P394344

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394150

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394165

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: P394374

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

Reference Method: SM 5310 B-2011
Batch ID: P394586

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: P394128

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394189

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394292

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394017

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394018

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393926

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393907

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393908

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

Reference Method: SM 2320 B-2011
Batch ID: P394162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P394363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.8		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P394150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P394165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P394374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P394586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225457	Bromide	97.0	98.2	P/P	90 - 110
2225595	Bromide	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2226171	Ammonia-N	97.8	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225769	Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225769	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225659	Kjeldahl Nitrogen	105	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225741	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225540	NO2NO3-N	98.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224925	Total-P	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225633	Total-P	103	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225746	O-Phosphate-P	97.1	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225755	O-Phosphate-P	98.6	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P394150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225834	Fluoride	98.3	98.8	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P394165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224939	Fluoride	96.1	97.6	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P394374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225675	Organic Carbon	97.1	96.3	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P394586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225701	Organic Carbon	98.0	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P393914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225753	Turbidity	3.43	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225457	Bromide	1.19	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2226171	Ammonia-N	0.177	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225769	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225769	Kjeldahl Nitrogen	0.120	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225659	Kjeldahl Nitrogen	3.81	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225741	NO2NO3-N	0.466	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225540	NO2NO3-N	0.484	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224925	Total-P	1.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225633	Total-P	0.907	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225746	O-Phosphate-P	0.0987	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225755	O-Phosphate-P	0.506	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P394162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225753	Total Alkalinity	0.348	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P394363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225834	Total Alkalinity	0.115	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P394150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225834	Fluoride	0.472	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P394165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224939	Fluoride	0.891	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P394374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225675	Organic Carbon	0.737	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P394586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225701	Organic Carbon	1.35	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: A103636

Included Lab Sample IDs: 2225755, 2225758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	98.2	P/P	90 - 110
O-Phosphate-P	99.1	98.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103637

Included Lab Sample IDs: 2225753, 2225756

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103650

Included Lab Sample IDs: 2225757

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103692

Included Lab Sample IDs: 2225754, 2225757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.5	P/P	90 - 110
Total-P	99.5	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103709

Included Lab Sample IDs: 2225754, 2225757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	105	P/P	90 - 110
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103717

Included Lab Sample IDs: 2225754

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103734

Included Lab Sample IDs: 2225753, 2225756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	95.3	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A103741

Included Lab Sample IDs: 2225756

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

Reference Method: SM 2320 B-2011

Run ID: A103744

Included Lab Sample IDs: 2225753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103744

Included Lab Sample IDs: 2225753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.5	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103751

Included Lab Sample IDs: 2225754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103805

Included Lab Sample IDs: 2225757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A103841

Included Lab Sample IDs: 2225756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	92.1	94.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A103844

Included Lab Sample IDs: 2225754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.3	93.3	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A103922

Included Lab Sample IDs: 2225757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	96.4	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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					3.43	
EPA 300.0 Rev. 2.1	Bromide	102	97.0	98.2	96.5		1.19
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	97.8	98.0			0.177
	Ammonia-N	97.2	103	100			1.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	102	102			0.120
	Kjeldahl Nitrogen	107	105	99.9			3.81
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.466
	NO2NO3-N	98.0	98.9	98.4			0.484
EPA 365.1 Rev. 2.0	Total-P	107	106	104			1.24
	Total-P	105	103	104			0.907
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.1	97.0			0.0987
	O-Phosphate-P	103	98.6	99.1			0.506
SM 2320 B-2011	Total Alkalinity	99.6				0.348	
	Total Alkalinity	94.8				0.115	
SM 4500 F-C-2011	Fluoride	97.9	98.3	98.8			0.472
	Fluoride	97.0	96.1	97.6			0.891
SM 5310 B-2011	Organic Carbon	97.4	97.1	96.3			0.737
	Organic Carbon	95.0	98.0	100			1.35

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2225753, 2225756
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2225753, 2225756
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2225754, 2225757
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2225754, 2225757
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2225754, 2225757
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2225754, 2225757
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2225755, 2225758
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2225753, 2225756
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2225753, 2225756
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2225753, 2225756
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2225754, 2225757

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/17/2021			02/17/2021 14:51	Yen Ta	2225753, 2225756
EPA 300.0 Rev. 2.1	02/17/2021			02/23/2021 03:01	Lipi Saha	2225753
	02/17/2021			02/23/2021 03:20	Lipi Saha	2225756
EPA 350.1 Rev. 2.0	02/17/2021			02/24/2021 18:05	Ping Hua	2225754
	02/17/2021			02/26/2021 17:54	Ping Hua	2225757
EPA 351.2 Rev. 2.0	02/17/2021	02/19/2021 12:31	Yen Ta	02/22/2021 11:57	Virginia P. Brown	2225757
	02/17/2021	02/19/2021 12:31	Yen Ta	02/22/2021 12:31	Virginia P. Brown	2225754
EPA 353.2 Rev. 2.0	02/17/2021			02/18/2021 10:50	Beverly Y. Sanders	2225757
	02/17/2021			02/23/2021 09:31	Beverly Y. Sanders	2225754
EPA 365.1 Rev. 2.0	02/17/2021	02/18/2021 16:15	Shengyu Wang	02/19/2021 14:43	Shengyu Wang	2225754
	02/17/2021	02/18/2021 16:15	Shengyu Wang	02/19/2021 15:01	Shengyu Wang	2225757
EPA 365.1 Rev. 2.0 dissolved	02/17/2021			02/17/2021 15:52	Blanca Fach	2225758
	02/17/2021			02/17/2021 16:04	Blanca Fach	2225755
SM 2320 B-2011	02/17/2021			02/24/2021 07:13	Dale L. Simmons	2225753
	02/17/2021			02/27/2021 01:01	Dale L. Simmons	2225756
SM 2540 D-2011	02/17/2021			02/22/2021 14:12	Yijie Li	2225753, 2225756
SM 4500 F-C-2011	02/17/2021			02/19/2021 23:44	Dale L. Simmons	2225756
	02/17/2021			02/24/2021 05:34	Dale L. Simmons	2225753
SM 5310 B-2011	02/17/2021			03/02/2021 05:53	Touraj Touran	2225754
	02/17/2021			03/05/2021 06:43	Madeline Gruver	2225757