Chemical Analysis Report

SO-DIST-2021-02-12-02

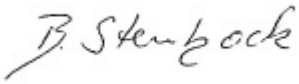
Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Caloosa Creeks**
Request ID: **RQ-2021-02-08-53**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Gary Snorek

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: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 04-MAR-2021 16:15



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: Telegraph Creek @ USGS **Collection Date/Time: 02/11/2021 08:55**

Field ID: G3SD0129 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225134	SM 2120 B-2011	Color (true)	120		PCU	P393733	
	SM 2320 B-2011	Total Alkalinity	158		mg CaCO3/L	P393798	
	SM 2540 D-2011	TSS	3	I	mg/L	P394095	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P393803	
2225139	SM 5310 B-2011 dissolved	Organic Carbon	20		mg C/L	P393841	
2225144	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P394188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.068		mg N/L	P393757	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P393872	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P393841	
2225149	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P393730	

Sample Location: Bee Branch @LoblollyBay **Collection Date/Time: 02/11/2021 09:45**

Field ID: G3SD0085 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225135	SM 2120 B-2011	Color (true)	130		PCU	P393733	
	SM 2320 B-2011	Total Alkalinity	38		mg CaCO3/L	P393798	
	SM 2540 D-2011	TSS	2	I	mg/L	P394095	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P393803	
2225140	SM 5310 B-2011 dissolved	Organic Carbon	18		mg C/L	P393841	
2225145	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P394038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P393758	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P393872	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P393841	
2225150	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P393730	

Sample Location: Nine Mile Canal @ SR 80 **Collection Date/Time: 02/11/2021 10:30**

Field ID: G3SD0088 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225136	SM 2120 B-2011	Color (true)	71		PCU	P393733	
	SM 2320 B-2011	Total Alkalinity	119		mg CaCO3/L	P393798	
	SM 2540 D-2011	TSS	4	I	mg/L	P394096	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P393803	
2225141	SM 5310 B-2011 dissolved	Organic Carbon	17		mg C/L	P393841	
2225146	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P394038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.079		mg N/L	P393758	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P393872	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P393842	
2225151	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P393730	

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: Roberts Canal @ SR 80 **Collection Date/Time: 02/11/2021 11:15**

Field ID: G3SD0146 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225137	SM 2120 B-2011	Color (true)	79		PCU	P393733	
	SM 2320 B-2011	Total Alkalinity	227		mg CaCO3/L	P393798	
	SM 2540 D-2011	TSS	10		mg/L	P394096	
	SM 4500 F-C-2011	Fluoride	0.34		mg F/L	P393803	
2225142	SM 5310 B-2011 dissolved	Organic Carbon	19		mg C/L	P393841	
2225147	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P394038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P393758	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P393872	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P393842	
2225152	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P393730	

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: Orange River @BoatRamp **Collection Date/Time: 02/11/2021 12:00**

Field ID: G3SD0128 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225138	SM 2120 B-2011	Color (true)	49	A	PCU	P393733	
	SM 2320 B-2011	Total Alkalinity	163		mg CaCO3/L	P393798	
	SM 2540 D-2011	TSS	3	I A	mg/L	P394096	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P393803	
2225143	SM 5310 B-2011 dissolved	Organic Carbon	12		mg C/L	P393841	
2225148	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P394188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P393758	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P393872	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P393842	
2225153	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P393730	

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 350.1 Rev. 2.0
Batch ID: P394038

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393758

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

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

Reference Method: SM 2120 B-2011
Batch ID: P393733

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P393798

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P394095

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P394096

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393803

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393841

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

Reference Method: SM 5310 B-2011
Batch ID: P393842

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P393841

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: P394038

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: P394188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

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: P393758

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P393733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.7		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P393798

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P393803

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P393841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P393842

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P393841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225108	Ammonia-N	95.6	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225107	Ammonia-N	98.6	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225146	Kjeldahl Nitrogen	97.7	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225007	NO2NO3-N	99.2	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225145	NO2NO3-N	99.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225148	Total-P	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225111	O-Phosphate-P	97.4	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P393803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224966	Fluoride	96.8	96.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P393841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225144	Organic Carbon	98.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P393842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2224153	Organic Carbon	98.8	98.6	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P393841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225144	Organic Carbon	98.6		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225108	Ammonia-N	1.86	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225107	Ammonia-N	1.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225146	Kjeldahl Nitrogen	0.919	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225007	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225145	NO2NO3-N	0.416	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225148	Total-P	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225111	O-Phosphate-P	0.818	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P393733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225138	Color (true)	0.665	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P393798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224966	Total Alkalinity	2.93	Sample	P	0 - 8.1

Reference Method: SM 2540 D-2011
Batch ID: P394095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224811	TSS	5.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P393803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224966	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P393841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225144	Organic Carbon	0.203	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P393842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2224153	Organic Carbon	0.106	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P393841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225144	Organic Carbon	0.203	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: A103565
Included Lab Sample IDs: 2225149, 2225150, 2225151, 2225152, 2225153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.4	P/P	90 - 110
O-Phosphate-P	99.4	99.8	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A103566
Included Lab Sample IDs: 2225134, 2225135, 2225136, 2225137, 2225138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.9	99.4	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A103580
Included Lab Sample IDs: 2225144, 2225145, 2225146, 2225147, 2225148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A103596
Included Lab Sample IDs: 2225134, 2225135, 2225136, 2225137, 2225138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.1	93.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A103596
Included Lab Sample IDs: 2225134, 2225135, 2225136, 2225137, 2225138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A103605
Included Lab Sample IDs: 2225144, 2225145, 2225146, 2225147, 2225148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	96.2	P/P	90 - 110
Organic Carbon	98.2	96.7	P/P	90 - 110
Organic Carbon	99.8	97.7	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved
Run ID: A103605
Included Lab Sample IDs: 2225139, 2225140, 2225141, 2225142, 2225143

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	97.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A103634
Included Lab Sample IDs: 2225144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A103641
Included Lab Sample IDs: 2225145, 2225146, 2225147, 2225148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A103694
Included Lab Sample IDs: 2225144, 2225145, 2225146, 2225147, 2225148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110
Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A103698
Included Lab Sample IDs: 2225145, 2225146, 2225147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A103751
Included Lab Sample IDs: 2225144, 2225148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.4	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 350.1 Rev. 2.0	Ammonia-N	99.4	95.6	97.6			1.86
	Ammonia-N	98.2	98.6	96.4			1.98
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.7	99.5			0.919
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.2	98.7			0.494
	NO2NO3-N	104	99.9	100			0.416
EPA 365.1 Rev. 2.0	Total-P	107	109	108			1.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	97.4	98.2			0.818
SM 2120 B-2011	Color (true)	95.7				0.665	
SM 2320 B-2011	Total Alkalinity	98.9				2.93	
SM 2540 D-2011	TSS					5.13	
SM 4500 F-C-2011	Fluoride	97.6	96.8	96.8			0.0
SM 5310 B-2011	Organic Carbon	99.2	98.6				0.203
	Organic Carbon	96.2	98.8	98.6			0.106
SM 5310 B-2011 dissolved	Organic Carbon	99.2	98.6				0.203

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2225144, 2225145, 2225146, 2225147, 2225148
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2225144, 2225145, 2225146, 2225147, 2225148
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2225144, 2225145, 2225146, 2225147, 2225148
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2225144, 2225145, 2225146, 2225147, 2225148
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2225149, 2225150, 2225151, 2225152, 2225153
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2225134, 2225135, 2225136, 2225137, 2225138
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2225134, 2225135, 2225136, 2225137, 2225138
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2225134, 2225135, 2225136, 2225137, 2225138
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2225134, 2225135, 2225136, 2225137, 2225138
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2225144, 2225145, 2225146, 2225147, 2225148
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2225139, 2225140, 2225141, 2225142, 2225143

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	02/12/2021			02/20/2021 13:22	Ping Hua	2225145
	02/12/2021			02/20/2021 13:23	Ping Hua	2225146
	02/12/2021			02/20/2021 13:25	Ping Hua	2225147
	02/12/2021			02/24/2021 17:01	Ping Hua	2225144
	02/12/2021			02/24/2021 17:02	Ping Hua	2225148
EPA 351.2 Rev. 2.0	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:45	Virginia P. Brown	2225144
	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:47	Virginia P. Brown	2225145
	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:49	Virginia P. Brown	2225146
	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:57	Virginia P. Brown	2225147
	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:58	Virginia P. Brown	2225148
EPA 353.2 Rev. 2.0	02/12/2021			02/15/2021 10:46	Beverly Y. Sanders	2225144
	02/12/2021			02/15/2021 10:53	Beverly Y. Sanders	2225145
	02/12/2021			02/15/2021 10:59	Beverly Y. Sanders	2225146
	02/12/2021			02/15/2021 11:00	Beverly Y. Sanders	2225147
	02/12/2021			02/15/2021 11:01	Beverly Y. Sanders	2225148
EPA 365.1 Rev. 2.0	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 13:59	Shengyu Wang	2225144
	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 16:33	Shengyu Wang	2225145
	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 16:34	Shengyu Wang	2225146
	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 16:35	Shengyu Wang	2225147
	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 16:36	Shengyu Wang	2225148
EPA 365.1 Rev. 2.0 dissolved	02/12/2021			02/12/2021 16:17	Julia Storbeck	2225149
	02/12/2021			02/12/2021 16:22	Julia Storbeck	2225150
	02/12/2021			02/12/2021 16:23	Julia Storbeck	2225151
	02/12/2021			02/12/2021 16:24	Julia Storbeck	2225152
	02/12/2021			02/12/2021 16:25	Julia Storbeck	2225153
SM 2120 B-2011	02/12/2021			02/12/2021 15:51	Madeline Gruver	2225134, 2225135
	02/12/2021			02/12/2021 15:52	Madeline Gruver	2225136
	02/12/2021			02/12/2021 15:53	Madeline Gruver	2225137
	02/12/2021			02/12/2021 15:54	Madeline Gruver	2225138
SM 2320 B-2011	02/12/2021			02/15/2021 21:07	Dale L. Simmons	2225134
	02/12/2021			02/15/2021 21:19	Dale L. Simmons	2225135
	02/12/2021			02/15/2021 21:32	Dale L. Simmons	2225136
	02/12/2021			02/15/2021 21:46	Dale L. Simmons	2225137
	02/12/2021			02/15/2021 21:59	Dale L. Simmons	2225138
SM 2540 D-2011	02/12/2021			02/15/2021 14:26	Yijie Li	2225134, 2225135, 2225136, 2225137, 2225138
SM 4500 F-C-2011	02/12/2021			02/15/2021 21:07	Dale L. Simmons	2225134
	02/12/2021			02/15/2021 21:19	Dale L. Simmons	2225135
	02/12/2021			02/15/2021 21:32	Dale L. Simmons	2225136
	02/12/2021			02/15/2021 21:46	Dale L. Simmons	2225137

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	02/12/2021			02/15/2021 21:59	Dale L. Simmons	2225138
SM 5310 B-2011	02/12/2021			02/15/2021 16:46	Touraj Touran	2225144
	02/12/2021			02/15/2021 17:35	Touraj Touran	2225145
	02/12/2021			02/16/2021 03:51	Touraj Touran	2225146
	02/12/2021			02/16/2021 04:03	Touraj Touran	2225147
	02/12/2021			02/16/2021 04:40	Touraj Touran	2225148
SM 5310 B-2011 dissolved	02/12/2021			02/15/2021 21:31	Touraj Touran	2225139
	02/12/2021			02/15/2021 21:43	Touraj Touran	2225140
	02/12/2021			02/15/2021 21:55	Touraj Touran	2225141
	02/12/2021			02/15/2021 22:08	Touraj Touran	2225142
	02/12/2021			02/15/2021 22:20	Touraj Touran	2225143