

Chemical Analysis Report

TLH-ROC-2020-12-22-04

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

Event Description: **Run 6**
Request ID: **RQ-2020-08-10-39**
Customer: **TLH-ROC**
Project ID: **SMP**

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

Date Certified: 14-JAN-2021 14:38



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: Aucilla River @ Mouth

Collection Date/Time: 12/22/2020 10:30

Field ID: G1TLHR0091

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215525	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P391625	
	EPA 300.0 Rev. 2.1	Chloride	1.0E+04		mg Cl/L	P392041	
		Sulfate	1.4E+03		mg SO4/L	P392043	
	SM 2120 B-2011	Color (true)	18		PCU	P391634	
	SM 2320 B-2011	Total Alkalinity	127		mg CaCO3/L	P391746	
	SM 2540 C-2011	TDS	1.62E+04		mg/L	P391953	
	SM 2540 D-2011	TSS	3	UA	mg/L	P391961	
	SM 4500 F-C-2011	Fluoride	0.71		mg F/L	P391749	
2215526	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P392204	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P391675	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P391912	
	SM 5310 B-2011	Organic Carbon	5.0		mg C/L	P391751	
2215527	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P391699	

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 122220

Collection Date/Time: 12/22/2020 11:00

Field ID: FB 122220

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215528	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P391625	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P392041	
		Sulfate	0.20	U	mg SO4/L	P392043	
		Color (true)	2.5	U	PCU	P391634	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P391746	
	SM 2540 C-2011	TDS	15	U	mg/L	P391952	
	SM 2540 D-2011	TSS	2	U	mg/L	P391959	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P391748	
2215529	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P391725	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P391839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391659	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P391757	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P391941	
2215530	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391630	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries and relative percent difference are unavailable because of analytical difficulties.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391625

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391725

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391839

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P392204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

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: P391757

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391912

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391699

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

Reference Method: SM 2120 B-2011
Batch ID: P391634

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P391746

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

Reference Method: SM 2540 C-2011
Batch ID: P391952

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P391953

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391959

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P391961

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391748

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391749

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391751

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

Reference Method: SM 5310 B-2011
Batch ID: P391941

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: P392041

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P392043

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P391724

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P391725

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P391839

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P392204

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P391659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P391675

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P391757

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P391912

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P391630

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P391699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.5		P	90 - 110

Reference Method: SM 2120 B-2011

Batch ID: P391634

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P391746

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.2		P	93 - 104

Reference Method: SM 4500 F-C-2011

Batch ID: P391748

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	90 - 106

Reference Method: SM 4500 F-C-2011

Batch ID: P391749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	90 - 106

Reference Method: SM 5310 B-2011

Batch ID: P391751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P391941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Chloride	97.5		P	90 - 110
2215984	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Sulfate	97.0		P	90 - 110
2215984	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214775	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215517	Ammonia-N	97.8	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P392204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2217134	Kjeldahl Nitrogen	93.9	89.3	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215475	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214780	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215516	Total-P	100	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215526	Total-P	96.5	97.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215470	O-Phosphate-P	100	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215527	O-Phosphate-P	98.6	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215322	Fluoride	95.3	95.3	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P391749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213362	Fluoride	99.3	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215526	Organic Carbon	100	100	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P391941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215897	Organic Carbon	100		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215514	Turbidity	3.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Chloride	0.00329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Sulfate	0.448	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214775	Ammonia-N	0.346	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215517	Ammonia-N	0.712	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P392204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2217134	Kjeldahl Nitrogen	4.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215475	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214780	NO2NO3-N	0.434	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215516	Total-P	0.486	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215526	Total-P	0.779	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215470	O-Phosphate-P	2.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215527	O-Phosphate-P	0.266	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P391634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215514	Color (true)	1.05	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215322	Total Alkalinity	0.662	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P391952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215322	TDS	3.85	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P391953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	TDS	1.90	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P391748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215322	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P391749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213362	Fluoride	0.509	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215526	Organic Carbon	0.444	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P391941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215897	Organic Carbon	0.883	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: A102728

Included Lab Sample IDs: 2215525, 2215528

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102730

Included Lab Sample IDs: 2215530

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.9	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A102732

Included Lab Sample IDs: 2215525, 2215528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	106	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102742

Included Lab Sample IDs: 2215529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102748

Included Lab Sample IDs: 2215526

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 dissolved

Run ID: A102768

Included Lab Sample IDs: 2215527

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102775

Included Lab Sample IDs: 2215526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102776

Included Lab Sample IDs: 2215529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A102789

Included Lab Sample IDs: 2215525, 2215528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.4	91.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102789

Included Lab Sample IDs: 2215525, 2215528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.6	P/P	90 - 110
Fluoride	99.1	100	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102792

Included Lab Sample IDs: 2215526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102813

Included Lab Sample IDs: 2215529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102855

Included Lab Sample IDs: 2215529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	96.2	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102874

Included Lab Sample IDs: 2215529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102875

Included Lab Sample IDs: 2215525, 2215528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	99.8	P/P	90 - 110
Sulfate	98.7	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102901

Included Lab Sample IDs: 2215526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102901

Included Lab Sample IDs: 2215526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103014

Included Lab Sample IDs: 2215526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.8	95.2	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.19	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5	97.6		0.0032	
	Sulfate	99.0	97.0	99.8		0.448	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	102			0.346
	Ammonia-N	100	97.8	98.8			0.712
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105					
	Kjeldahl Nitrogen	99.7	93.9	89.3			4.02
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.5	98.5			0.0
	NO ₂ NO ₃ -N	101	101	101			0.434
EPA 365.1 Rev. 2.0	Total-P	102	100	99.7			0.486
	Total-P	103	96.5	97.3			0.779
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	98.3			2.21
	O-Phosphate-P	97.5	98.6	98.3			0.266
SM 2120 B-2011	Color (true)	103				1.05	
SM 2320 B-2011	Total Alkalinity	95.2				0.662	
SM 2540 C-2011	TDS					3.85	
	TDS					1.90	
SM 4500 F-C-2011	Fluoride	96.7	95.3	95.3			0.0
	Fluoride	94.8	99.3	100			0.509
SM 5310 B-2011	Organic Carbon	103	100	100			0.444
	Organic Carbon	95.3	100				0.883

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2215525, 2215528
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2215525, 2215528
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2215525, 2215528
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2215526, 2215529
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2215526, 2215529
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2215526, 2215529
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2215526, 2215529
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2215527, 2215530
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2215525, 2215528
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2215525, 2215528
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2215525, 2215528
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2215525, 2215528
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2215525, 2215528
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2215526, 2215529

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	12/22/2020			12/22/2020 14:51	Yen Ta	2215525, 2215528
EPA 300.0 Rev. 2.1	12/22/2020			01/06/2021 23:02	Lipi Saha	2215525
	12/22/2020			01/06/2021 23:14	Lipi Saha	2215528
EPA 350.1 Rev. 2.0	12/22/2020			12/26/2020 17:13	Ping Hua	2215526
	12/22/2020			12/26/2020 19:48	Ping Hua	2215529
EPA 351.2 Rev. 2.0	12/22/2020	01/11/2021 13:56	Yen Ta	01/12/2021 17:15	Julia Storbeck	2215526
	12/22/2020	12/29/2020 10:24	Yen Ta	12/30/2020 17:12	Virginia P. Brown	2215529
EPA 353.2 Rev. 2.0	12/22/2020			12/23/2020 10:02	Beverly Y. Sanders	2215529
	12/22/2020			12/23/2020 11:41	Beverly Y. Sanders	2215526
EPA 365.1 Rev. 2.0	12/22/2020	01/04/2021 13:12	Yen Ta	01/06/2021 11:13	Shengyu Wang	2215526
	12/22/2020	12/28/2020 12:53	Yen Ta	12/29/2020 13:48	Shengyu Wang	2215529
EPA 365.1 Rev. 2.0 dissolved	12/22/2020			12/22/2020 15:31	Blanca Fach	2215530
	12/22/2020			12/23/2020 16:09	Virginia P. Brown	2215527
SM 2120 B-2011	12/22/2020			12/22/2020 16:05	Benjamin T. Nordmann	2215525
	12/22/2020			12/22/2020 16:06	Benjamin T. Nordmann	2215528
SM 2320 B-2011	12/22/2020			12/23/2020 22:04	Dale L. Simmons	2215528
	12/22/2020			12/23/2020 22:16	Dale L. Simmons	2215525
SM 2540 C-2011	12/22/2020			12/26/2020 16:45	Yijie Li	2215525, 2215528
SM 2540 D-2011	12/22/2020			12/26/2020 16:45	Yijie Li	2215525, 2215528
SM 4500 F-C-2011	12/22/2020			12/23/2020 22:04	Dale L. Simmons	2215528
	12/22/2020			12/24/2020 00:36	Dale L. Simmons	2215525
SM 5310 B-2011	12/22/2020			01/04/2021 08:41	Touraj Touran	2215529
	12/22/2020			12/24/2020 01:37	Madeline Gruver	2215526