Chemical Analysis Report

SO-DIST-2021-12-01-01

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

Event Description: **2021 SMP : Brandy Branches**
Request ID: **RQ-2021-11-29-28**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-DEC-2021 10:55

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 groups are included in this report: Nutrients and Pesticides.

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: Brandy Branch @ SR 70 **Collection Date/Time: 11/30/2021 09:30**

Field ID: G3SD0083 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291978	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P406924	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P407186	
		Sulfate	380		mg SO4/L	P407365	
	SM 2120 B-2011	Color (true)	140		PCU	P406898	
	SM 2320 B-2011	Total Alkalinity	42		mg CaCO3/L	P407030	
	SM 2540 C-2011	TDS	697		mg/L	P407378	
	SM 2540 D-2011	TSS	2	I	mg/L	P407347	
	SM 4500 F-C-2011	Fluoride	0.51		mg F/L	P407039	
2291979	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P407372	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P406997	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P406984	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P406888	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P407554	
2291980	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.096		mg P/L	P406903	MS
2291987	EPA 8276	Chlordane	2.9	U	ng/L	P407020	
		Toxaphene	18	U	ng/L	P407020	

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 **Collection Date/Time: 11/30/2021 09:55**

Field ID: FB_11302021 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291981	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P406924	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P407186	
		Sulfate	0.20	U	mg SO4/L	P407189	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P406898	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407030	
	SM 2540 C-2011	TDS	15	U	mg/L	P407377	
	SM 2540 D-2011	TSS	2	U	mg/L	P407346	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407039	
2291982	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P407372	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P406997	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P406984	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P406889	
	SM 5310 B-2011	Organic Carbon	0.60	I	mg C/L	P407554	
2291983	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406903	MS

Ref. Method and Comment:
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 12/16/2021.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406924

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407186

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407189

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407372

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406997

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406888

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406889

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 dissolved
Batch ID: P406903

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

Reference Method: EPA 8276
Batch ID: P407020

Component	Result	Code	Units
Chlordane	2.5	U	ng/L
Chlordane	2.5	U	ng/L
Toxaphene	15	U	ng/L
Toxaphene	15	U	ng/L

Reference Method: SM 2120 B-2011
Batch ID: P406898

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P407030

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

Reference Method: SM 2540 C-2011
Batch ID: P407377

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P407378

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407346

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407347

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

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: P407554

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: P407186

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407189

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407372

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406997

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: P406984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406888

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406889

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406903

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8276
Batch ID: P407020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	74.8	76.6	P/P	56 - 117
Toxaphene	69.7	68.4	P/P	45 - 116

Reference Method: SM 2120 B-2011
Batch ID: P406898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P407030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P407554

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291650	Chloride	98.1		P	90 - 110
2291960	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291650	Sulfate	93.5		P	90 - 110
2291960	Sulfate	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292967	Sulfate	98.5		P	90 - 110
2293205	Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291962	Ammonia-N	98.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291950	Kjeldahl Nitrogen	108	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291949	NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291948	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292008	Total-P	102	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292009	O-Phosphate-P	66.7	64.4	F/F	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P407020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292182	Chlordane	67.2	80.6	P/P	47 - 128
2292182	Toxaphene	56.0	72.8	P/P	11 - 163

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291991	Fluoride	98.9	98.9	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P407554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292006	Organic Carbon	97.2	97.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292004	Turbidity	2.37	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291650	Chloride	0.983	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291650	Sulfate	0.0726	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292967	Sulfate	0.922	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291962	Ammonia-N	1.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291950	Kjeldahl Nitrogen	0.799	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291949	NO2NO3-N	0.252	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291948	Total-P	0.349	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292008	Total-P	3.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292009	O-Phosphate-P	3.51	Spike	P	0 - 20

Reference Method: EPA 8276
Batch ID: P407020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292182	Chlordane	18.0	Spike	P	0 - 30
2292182	Toxaphene	26.1	Spike	P	0 - 30
LFB	Chlordane	2.39	LCS	P	0 - 30
LFB	Toxaphene	1.83	LCS	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P406898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292099	Color (true)	0.546	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P407030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291991	Total Alkalinity	4.56	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P407377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291468	TDS	2.23	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P407378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291887	TDS	4.62	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291991	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292006	Organic Carbon	0.0944	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Surrogates

Lab Sample ID: 2291987
Field Sample ID: G3SD0083

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	67.0	P	29 - 92.0
EPA 8276	PCNB	73.6	P	43 - 134

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B-2011
Run ID: A109149
Included Lab Sample IDs: 2291978, 2291981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A109150
Included Lab Sample IDs: 2291980, 2291983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A109159
Included Lab Sample IDs: 2291978, 2291981

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A109190
Included Lab Sample IDs: 2291979, 2291982

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

Reference Method: SM 2320 B-2011
Run ID: A109203
Included Lab Sample IDs: 2291978, 2291981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A109203
Included Lab Sample IDs: 2291978, 2291981

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A109212
Included Lab Sample IDs: 2291979

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A109217
Included Lab Sample IDs: 2291979, 2291982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A109220
Included Lab Sample IDs: 2291982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 8276
Run ID: A109243
Included Lab Sample IDs: 2291987

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	91.8		P	80 - 120
Toxaphene	94.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A109256
Included Lab Sample IDs: 2291978, 2291981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	98.2	100	P/P	90 - 110
Sulfate	98.4	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A109347
Included Lab Sample IDs: 2291979, 2291982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	98.4	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A109430
Included Lab Sample IDs: 2291979, 2291982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.5	96.4	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 180.1 Rev. 2.0	Turbidity				2.37	
EPA 300.0 Rev. 2.1	Chloride	98.8	98.1 99.5		0.983	
	Sulfate	96.3	93.5 95.8		0.0726	
	Sulfate	97.0	98.5 97.0		0.922	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.0 99.8			1.64
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	108 107			0.799
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.0 99.5			0.252
EPA 365.1 Rev. 2.0	Total-P	102	106 106			0.349
	Total-P	104	102 106			3.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	66.7 64.4			3.51
EPA 8276	Chlordane	74.8 76.6	67.2 80.6	2.39		18.0
	Toxaphene	69.7 68.4	56.0 72.8	1.83		26.1
SM 2120 B-2011	Color (true)	101			0.546	
SM 2320 B-2011	Total Alkalinity	98.9			4.56	
SM 2540 C-2011	TDS				2.23	
	TDS				4.62	
SM 4500 F-C-2011	Fluoride	102	98.9 98.9			0.0
SM 5310 B-2011	Organic Carbon	94.5	97.2 97.4			0.0944

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2291978, 2291981
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2291978, 2291981
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2291978, 2291981
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2291979, 2291982
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2291979, 2291982
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2291979, 2291982
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2291979, 2291982
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2291980, 2291983
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2291987
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2291978, 2291981
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2291978, 2291981
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2291978, 2291981
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2291978, 2291981
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2291978, 2291981
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2291979, 2291982

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	12/01/2021			12/01/2021 17:34	Khloe J Berg	2291978, 2291981
EPA 300.0 Rev. 2.1	12/01/2021			12/07/2021 19:03	Roberta Tatti	2291978
	12/01/2021			12/07/2021 19:15	Roberta Tatti	2291981
	12/01/2021			12/10/2021 13:38	Roberta Tatti	2291978
EPA 350.1 Rev. 2.0	12/01/2021			12/13/2021 12:58	Ping Hua	2291979
	12/01/2021			12/13/2021 13:01	Ping Hua	2291982
EPA 351.2 Rev. 2.0	12/01/2021	12/03/2021 12:35	Benjamin T. Nordmann	12/06/2021 12:20	Alexandra J Mattheus	2291979
	12/01/2021	12/03/2021 12:35	Benjamin T. Nordmann	12/06/2021 12:21	Alexandra J Mattheus	2291982
EPA 353.2 Rev. 2.0	12/01/2021			12/03/2021 10:03	Beverly Y. Sanders	2291979
	12/01/2021			12/03/2021 10:04	Beverly Y. Sanders	2291982
EPA 365.1 Rev. 2.0	12/01/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/03/2021 16:46	Sarah A Nixon	2291979
	12/01/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/06/2021 12:51	Shengyu Ding	2291982
EPA 365.1 Rev. 2.0 dissolved	12/01/2021			12/01/2021 15:06	James L Waggerby	2291980
	12/01/2021			12/01/2021 15:07	James L Waggerby	2291983
EPA 8276	12/01/2021	12/03/2021 08:00	Fe-Val Siddell	12/07/2021 13:29	Arthur Maknenko	2291987
SM 2120 B-2011	12/01/2021			12/01/2021 16:00	Samantha L Bates	2291978
	12/01/2021			12/01/2021 16:01	Samantha L Bates	2291981
SM 2320 B-2011	12/01/2021			12/04/2021 06:11	Dale L. Simmons	2291978
	12/01/2021			12/04/2021 06:19	Dale L. Simmons	2291981
SM 2540 C-2011	12/01/2021			12/03/2021 15:08	Yijie Li	2291978, 2291981
SM 2540 D-2011	12/01/2021			12/03/2021 15:35	Yijie Li	2291978, 2291981
SM 4500 F-C-2011	12/01/2021			12/04/2021 06:11	Dale L. Simmons	2291978
	12/01/2021			12/04/2021 06:19	Dale L. Simmons	2291981
SM 5310 B-2011	12/01/2021			12/15/2021 20:55	Khloe J Berg	2291979
	12/01/2021			12/15/2021 21:08	Khloe J Berg	2291982