Chemical Analysis Report

SE-DIST-2019-11-01-02

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

Event Description: **SMP- CM Deployment**
Request ID: **RQ-2019-10-21-45**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
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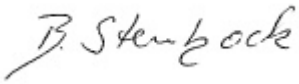
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 20-NOV-2019 18:30



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: Metals, 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: Willoughby Creek **Collection Date/Time: 10/31/2019 12:00**

Field ID: G2SE0034 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2133038	EPA 180.1 Rev. 2.0	Turbidity	3.2	A	NTU	P373603	
	EPA 300.0	Bromide	50		mg Br/L	P373777	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P373988	
	SM 2540 D-97	TSS	8	I A	mg/L	P374033	
	SM 4500 F-C-97	Fluoride	0.96		mg F/L	P373994	
2133039	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P373983	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P373833	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P373670	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P373793	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P374117	
2133040	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P373624	
2133049	EPA 8276	Chlordane	5.2	U	ng/L	P373744	
		Toxaphene	31	UJ	ng/L	P373744	CCV
2133050	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P373797	
		Manganese	5.0	I	ug/L	P373797	
		Zinc	20	U	ug/L	P373797	
	EPA 200.8 Rev. 5.4	Aluminum	60	I	ug/L	P373797	
		Antimony	0.50	U	ug/L	P373797	
		Arsenic	2.5		ug/L	P373797	
		Cadmium	0.20	U	ug/L	P373797	
		Chromium	4.0	U	ug/L	P373797	
		Copper	4.3		ug/L	P373797	
		Lead	2.0	U	ug/L	P373797	
		Nickel	5.0	U	ug/L	P373797	
		Selenium	2.0	U	ug/L	P373797	
		Silver	0.10	U	ug/L	P373797	
		Thallium	1.0	U	ug/L	P373797	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 8276: Refer to the Lab Analysis Report for an explanation of QC Codes.
EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 11/11/2019.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373603

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P373797

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373797

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0
Batch ID: P373777

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373983

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373833

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373670

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: P373793

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373624

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

Reference Method: EPA 8276
Batch ID: P373744

Component	Result	Code	Units
Chlordane	5.0	U	ng/L
Toxaphene	30	U	ng/L

Reference Method: SM 2320 B-97
Batch ID: P373988

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

Reference Method: SM 2540 D-97
Batch ID: P374033

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374117

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P373797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	109		P	85 - 115
Manganese	101		P	85 - 115
Zinc	99.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.3		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	94.9		P	85 - 115
Cadmium	96.6		P	85 - 115
Chromium	97.6		P	85 - 115
Copper	94.4		P	85 - 115
Lead	97.0		P	85 - 115
Nickel	96.9		P	85 - 115
Selenium	97.4		P	85 - 115
Silver	100		P	85 - 115
Thallium	99.7		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P373777

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373983

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: P373833

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373670

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373793

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373624

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

Reference Method: EPA 8276
Batch ID: P373744

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	92.6	93.3	P/P	43 - 128
Toxaphene	80.4	78.4	P/P	38 - 140

Reference Method: SM 2320 B-97
Batch ID: P373988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P373797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132762	Iron	97.6	98.0	P/P	70 - 130
2132762	Manganese	93.8	93.0	P/P	70 - 130
2132762	Zinc	102	101	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132762	Aluminum	101	103	P/P	70 - 130
2132762	Antimony	104	105	P/P	70 - 130
2132762	Arsenic	108	105	P/P	70 - 130
2132762	Cadmium	92.5	94.5	P/P	70 - 130
2132762	Chromium	81.0	80.1	P/P	70 - 130
2132762	Copper	84.0	84.6	P/P	70 - 130
2132762	Lead	103	104	P/P	70 - 130
2132762	Nickel	83.6	85.0	P/P	70 - 130
2132762	Selenium	92.3	96.8	P/P	70 - 130
2132762	Silver	91.3	91.0	P/P	70 - 130
2132762	Thallium	92.5	92.1	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P373777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132743	Bromide	96.8	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133581	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132417	Kjeldahl Nitrogen	103	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132714	NO2NO3-N	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133363	Total-P	91.0	93.7	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133040	O-Phosphate-P	98.1	97.8	P/P	90 - 110

Reference Method: EPA 8276
Batch ID: P373744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133060	Chlordane	69.7	70.4	P/P	34 - 136
2133060	Toxaphene	71.4	64.0	P/P	22 - 152

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2131834	Fluoride	99.8	97.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P374117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134502	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133038	Turbidity	1.56	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P373797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132762	Iron	0.398	Spike	P	0 - 20
2132762	Manganese	0.855	Spike	P	0 - 20
2132762	Zinc	0.755	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P373797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132762	Aluminum	1.74	Spike	P	0 - 20
2132762	Antimony	0.802	Spike	P	0 - 20
2132762	Arsenic	2.94	Spike	P	0 - 20
2132762	Cadmium	2.14	Spike	P	0 - 20
2132762	Chromium	1.12	Spike	P	0 - 20
2132762	Copper	0.650	Spike	P	0 - 20
2132762	Lead	0.719	Spike	P	0 - 20
2132762	Nickel	1.68	Spike	P	0 - 20
2132762	Selenium	4.84	Spike	P	0 - 20
2132762	Silver	0.277	Spike	P	0 - 20
2132762	Thallium	0.364	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P373777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132743	Bromide	0.815	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133581	Ammonia-N	0.858	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132417	Kjeldahl Nitrogen	3.85	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132714	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133363	Total-P	2.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133040	O-Phosphate-P	0.214	Spike	P	0 - 20

Reference Method: EPA 8276
Batch ID: P373744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133060	Chlordane	1.02	Spike	P	0 - 30
2133060	Toxaphene	10.8	Spike	P	0 - 30
LFB	Chlordane	0.701	LCS	P	0 - 30
LFB	Toxaphene	2.52	LCS	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P373988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133458	Total Alkalinity	0.351	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2131834	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134502	Organic Carbon	0.159	Spike	P	0 - 20

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2133049
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	65.4	P	30 - 103
EPA 8276	PCNB	87.8	P	37 - 143

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A95414
Included Lab Sample IDs: 2133038

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A95427
Included Lab Sample IDs: 2133040

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A95468
Included Lab Sample IDs: 2133039

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

Reference Method: EPA 300.0
Run ID: A95513
Included Lab Sample IDs: 2133038

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	102	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A95555
Included Lab Sample IDs: 2133039

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A95562
Included Lab Sample IDs: 2133050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	90.5	92.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A95564
Included Lab Sample IDs: 2133050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	101	P/P	90 - 110
Manganese	102	102	P/P	90 - 110
Zinc	99.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A95591
Included Lab Sample IDs: 2133039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A95591
Included Lab Sample IDs: 2133039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A95603
Included Lab Sample IDs: 2133050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.8	101	P/P	90 - 110
Antimony	98.7	97.2	P/P	90 - 110
Cadmium	98.6	98.1	P/P	90 - 110
Chromium	100	98.0	P/P	90 - 110
Lead	96.4	95.8	P/P	90 - 110
Nickel	99.2	99.3	P/P	90 - 110
Selenium	99.3	97.5	P/P	90 - 110
Silver	97.6	97.5	P/P	90 - 110
Thallium	92.6	91.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A95607
Included Lab Sample IDs: 2133050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	107	109	P/P	90 - 110

Reference Method: EPA 8276
Run ID: A95614
Included Lab Sample IDs: 2133049

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	94.6		P	80 - 120
Toxaphene	66.5*		F	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A95616
Included Lab Sample IDs: 2133039

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

Reference Method: SM 2320 B-97
Run ID: A95617
Included Lab Sample IDs: 2133038

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.5	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A95617
Included Lab Sample IDs: 2133038

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A95617
Included Lab Sample IDs: 2133038

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A95686
Included Lab Sample IDs: 2133039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	105	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						1.56	
EPA 200.7 Rev. 4.4	Iron	109		97.6	98.0			0.398
	Manganese	101		93.8	93.0			0.855
	Zinc	99.5		102	101			0.755
EPA 200.8 Rev. 5.4	Aluminum	97.3		101	103			1.74
	Antimony	101		104	105			0.802
	Arsenic	94.9		108	105			2.94
	Cadmium	96.6		92.5	94.5			2.14
	Chromium	97.6		81.0	80.1			1.12
	Copper	94.4		84.0	84.6			0.650
	Lead	97.0		103	104			0.719
	Nickel	96.9		83.6	85.0			1.68
	Selenium	97.4		92.3	96.8			4.84
	Silver	100		91.3	91.0			0.277
	Thallium	99.7		92.5	92.1			0.364
EPA 300.0	Bromide	100		96.8	98.4			0.815
EPA 350.1 Rev. 2.0	Ammonia-N	100		101	102			0.858
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.6		103	98.8			3.85
EPA 353.2 Rev. 2.0	NO2NO3-N	100		97.8				0.0
EPA 365.1 Rev. 2.0	Total-P	100		91.0	93.7			2.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102		98.1	97.8			0.214
EPA 8276	Chlordane	92.6	93.3	69.7	70.4	0.701		1.02
	Toxaphene	80.4	78.4	71.4	64.0	2.52		10.8
SM 2320 B-97	Total Alkalinity	99.0					0.351	
SM 4500 F-C-97	Fluoride	96.5		99.8	97.0			1.48
SM 5310 B-00	Organic Carbon	102		103	103			0.159

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2133038
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2133050
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2133050
EPA 300.0 / E31780	Bromide in aqueous matrices	2133038
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2133039
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2133039
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2133039
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2133039
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2133040
EPA 8276 / E31780	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2133049
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2133038
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2133038
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2133038
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2133039

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	11/01/2019			11/01/2019 17:05	Rosalyn Ballman	2133038
EPA 200.7 Rev. 4.4	11/01/2019	11/06/2019 14:20	Elliott D. Healy	11/07/2019 14:10	Alexander Thompson	2133050
EPA 200.8 Rev. 5.4	11/01/2019	11/06/2019 14:20	Elliott D. Healy	11/07/2019 13:59	Robert K Palmer	2133050
	11/01/2019	11/06/2019 14:20	Elliott D. Healy	11/08/2019 01:36	Robert K Palmer	2133050
	11/01/2019	11/06/2019 14:20	Elliott D. Healy	11/11/2019 08:09	Robert K Palmer	2133050
EPA 300.0	11/01/2019			11/05/2019 12:25	Jhamieka S. Greenwood	2133038
EPA 350.1 Rev. 2.0	11/01/2019			11/06/2019 12:57	Ping Hua	2133039
EPA 351.2 Rev. 2.0	11/01/2019	11/07/2019 11:50	Sima Feizi	11/08/2019 11:31	Virginia P. Brown	2133039
EPA 353.2 Rev. 2.0	11/01/2019			11/05/2019 08:57	Beverly Y. Sanders	2133039
EPA 365.1 Rev. 2.0	11/01/2019	11/06/2019 15:02	Yen Ta	11/07/2019 14:47	Benjamin T. Nordmann	2133039
EPA 365.1 Rev. 2.0 dissolved	11/01/2019			11/01/2019 16:40	Samantha Davila	2133040
EPA 8276	11/01/2019	11/05/2019 13:00	Rasheda Ghaffari	11/09/2019 07:40	Michael Poppell	2133049
SM 2320 B-97	11/01/2019			11/09/2019 01:32	Dale L. Simmons	2133038
SM 2540 D-97	11/01/2019			11/06/2019 14:36	Yijie Li	2133038
SM 4500 F-C-97	11/01/2019			11/08/2019 23:12	Dale L. Simmons	2133038
SM 5310 B-00	11/01/2019			11/13/2019 05:41	Madeline Funaro	2133039