Chemical Analysis Report

SO-DIST-2021-07-27-01

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

Event Description: **2021 SMP: Peace River**
Request ID: **RQ-2021-07-26-62**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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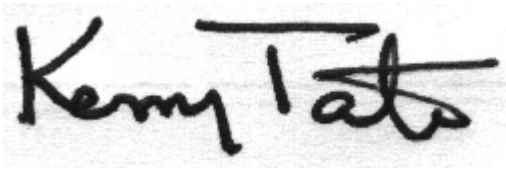
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 23-AUG-2021 11:08



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: Alligator South @ Jones Loop Rd. **Collection Date/Time: 07/26/2021 08:30**

Field ID: G2SD0033 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2265137	EPA 8276	Chlordane	5.5	U	ng/L	P401662	
		Toxaphene	33	U	ng/L	P401662	
2265145	EPA 200.7 Rev. 4.4	Barium	5.8		ug/L	P401702	
		Calcium	13.1		mg/L	P401702	
		Iron	440		ug/L	P401702	
		Magnesium	1.87		mg/L	P401702	
		Manganese	12.2		ug/L	P401702	
		Potassium	0.33	I	mg/L	P401702	
		Sodium	7.8		mg/L	P401702	
	EPA 200.8 Rev. 5.4	Aluminum	42		ug/L	P401702	
		Antimony	0.14	I	ug/L	P401702	
		Arsenic	0.71		ug/L	P401702	
		Boron**	19.5		ug/L	P401702	
		Cadmium	0.020	U	ug/L	P401702	
		Chromium	0.40	U	ug/L	P401702	
		Copper	0.54	I	ug/L	P402167	
		Lead	0.35	I	ug/L	P401702	
		Nickel	0.50	U	ug/L	P401702	
		Selenium	0.20	U	ug/L	P401702	
		Silver	0.010	U	ug/L	P401702	
		Thallium	0.10	U	ug/L	P401702	
		Zinc	7.0	U	ug/L	P401702	
	SM 2340B	Hardness	40.5		mg/L	P401702	

Sample Location: Alligator Creek @ Boots St. **Collection Date/Time: 07/26/2021 08:55**

Field ID: G2SD0044 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2265138	EPA 8276	Chlordane	5.5	U	ng/L	P401662	
		Toxaphene	33	U	ng/L	P401662	
2265146	EPA 200.7 Rev. 4.4	Barium	8.4		ug/L	P401702	
		Calcium	22.9		mg/L	P401702	
		Iron	580		ug/L	P401702	
		Magnesium	2.65		mg/L	P401702	
		Manganese	12.8		ug/L	P401702	
		Potassium	0.70	I	mg/L	P401702	
		Sodium	12.7		mg/L	P401702	
	EPA 200.8 Rev. 5.4	Aluminum	36		ug/L	P401702	
		Antimony	0.14	I	ug/L	P401702	
		Arsenic	1.11		ug/L	P401702	
		Boron**	26.4		ug/L	P401702	
		Cadmium	0.020	U	ug/L	P401702	
		Chromium	0.40	U	ug/L	P401702	
		Copper	0.40	U	ug/L	P402243	
		Lead	0.32	I	ug/L	P401702	
		Nickel	0.50	U	ug/L	P401702	
		Selenium	0.20	U	ug/L	P401702	
		Silver	0.010	U	ug/L	P401702	
		Thallium	0.10	U	ug/L	P401702	
		Zinc	7.0	U	ug/L	P401702	
	SM 2340B	Hardness	68.1		mg/L	P401702	

Sample Location: Peace River Estuary @ Harbour Heights **Collection Date/Time: 07/26/2021 09:20**

Field ID: G3SD0148 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2265128	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P401604	
	SM 2320 B-2011	Total Alkalinity	58	A	mg CaCO3/L	P401669	
	SM 2540 D-2011	TSS	3	I	mg/L	P401833	
	SM 4500 F-C-2011	Fluoride	0.47		mg F/L	P401673	
2265129	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P402179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P402633	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P401629	
	EPA 365.1 Rev. 2.0	Total-P	0.80		mg P/L	P401694	MS
	SM 5310 B-2011	Organic Carbon	26		mg C/L	P402249	
2265130	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.69		mg P/L	P401599	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401604

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401702

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.23	I	mg/L
Iron	30	U	ug/L
Magnesium	0.067	I	mg/L
Manganese	1.0	U	ug/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401702

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	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
Zinc	7.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402167

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402243

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402179

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401694

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

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

Reference Method: EPA 8276
Batch ID: P401662

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

Reference Method: SM 2320 B-2011
Batch ID: P401669

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

Reference Method: SM 2540 D-2011
Batch ID: P401833

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401673

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402249

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: P401702

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	110		P	85 - 115
Iron	106		P	85 - 115
Magnesium	110		P	85 - 115
Manganese	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401702

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.9		P	85 - 115
Antimony	96.9		P	85 - 115
Arsenic	98.5		P	85 - 115
Boron	97.6		P	85 - 115
Cadmium	93.5		P	85 - 115
Chromium	94.5		P	85 - 115
Lead	95.7		P	85 - 115
Nickel	97.9		P	85 - 115
Selenium	96.9		P	85 - 115
Silver	107		P	85 - 115
Thallium	97.4		P	85 - 115
Zinc	98.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	95.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402243

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	96.7		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402179

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

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: P401694

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

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

Reference Method: EPA 8276
Batch ID: P401662

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	81.5	86.6	P/P	56 - 117
Toxaphene	86.9	81.4	P/P	45 - 116

Reference Method: SM 2320 B-2011
Batch ID: P401669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P401673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402249

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265145	Barium	102		P	80 - 120
2265145	Calcium	102		P	80 - 120
2265145	Iron	99.3		P	80 - 120
2265145	Magnesium	101		P	80 - 120
2265145	Manganese	95.8		P	80 - 120
2265145	Potassium	98.4		P	80 - 120
2265145	Sodium	105		P	80 - 120
2265293	Barium	100	102	P/P	80 - 120
2265293	Calcium	102	104	P/P	80 - 120
2265293	Iron	103	104	P/P	80 - 120
2265293	Magnesium	106	107	P/P	80 - 120
2265293	Manganese	98.9	101	P/P	80 - 120
2265293	Potassium	103	104	P/P	80 - 120
2265293	Sodium	103	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401702

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265145	Aluminum	95.6		P	80 - 120
2265145	Antimony	96.5		P	80 - 120
2265145	Arsenic	98.1		P	80 - 120
2265145	Boron	99.4		P	80 - 120
2265145	Cadmium	94.6		P	80 - 120
2265145	Chromium	95.2		P	80 - 120
2265145	Lead	95.7		P	80 - 120
2265145	Nickel	95.6		P	80 - 120
2265145	Selenium	97.5		P	80 - 120
2265145	Silver	106		P	80 - 120
2265145	Thallium	102		P	80 - 120
2265145	Zinc	99.8		P	80 - 120
2265293	Aluminum	96.5	94.7	P/P	80 - 120
2265293	Antimony	97.0	94.9	P/P	80 - 120
2265293	Arsenic	98.8	96.8	P/P	80 - 120
2265293	Boron	97.3	95.3	P/P	80 - 120
2265293	Cadmium	94.8	91.2	P/P	80 - 120
2265293	Chromium	95.2	92.6	P/P	80 - 120
2265293	Lead	94.6	93.2	P/P	80 - 120
2265293	Nickel	101	96.4	P/P	80 - 120
2265293	Selenium	96.9	95.7	P/P	80 - 120
2265293	Silver	107	106	P/P	80 - 120
2265293	Thallium	100	99.9	P/P	80 - 120
2265293	Zinc	99.8	98.1	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264638	Copper	93.1	92.4	P/P	80 - 120
2265323	Copper	94.1		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264588	Copper	87.4		P	80 - 120
2265305	Copper	90.1	92.5	P/P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265956	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265183	Kjeldahl Nitrogen	95.0	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265166	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265091	Total-P	109	111	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265193	O-Phosphate-P	94.4	94.8	P/P	90 - 110

Reference Method: EPA 8276
Batch ID: P401662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265137	Chlordane	93.9	92.3	P/P	47 - 128
2265137	Toxaphene	91.4	99.3	P/P	11 - 163

Reference Method: SM 5310 B-2011
Batch ID: P402249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264982	Organic Carbon	101	99.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265111	Turbidity	1.20	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265293	Barium	1.47	Spike	P	0 - 20
2265293	Calcium	1.24	Spike	P	0 - 20
2265293	Iron	0.676	Spike	P	0 - 20
2265293	Magnesium	0.584	Spike	P	0 - 20
2265293	Manganese	1.47	Spike	P	0 - 20
2265293	Potassium	0.640	Spike	P	0 - 20
2265293	Sodium	1.32	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265293	Aluminum	1.77	Spike	P	0 - 20
2265293	Antimony	2.13	Spike	P	0 - 20
2265293	Arsenic	2.06	Spike	P	0 - 20
2265293	Boron	1.86	Spike	P	0 - 20
2265293	Cadmium	3.84	Spike	P	0 - 20
2265293	Chromium	2.71	Spike	P	0 - 20
2265293	Lead	1.44	Spike	P	0 - 20
2265293	Nickel	4.47	Spike	P	0 - 20
2265293	Selenium	1.22	Spike	P	0 - 20
2265293	Silver	1.02	Spike	P	0 - 20
2265293	Thallium	0.435	Spike	P	0 - 20
2265293	Zinc	1.77	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264638	Copper	0.816	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265305	Copper	2.65	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265956	Ammonia-N	0.394	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265183	Kjeldahl Nitrogen	1.66	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265166	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265091	Total-P	0.817	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265193	O-Phosphate-P	0.423	Spike	P	0 - 20

Reference Method: EPA 8276
Batch ID: P401662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265137	Chlordane	1.68	Spike	P	0 - 30
2265137	Toxaphene	8.27	Spike	P	0 - 30
LFB	Chlordane	6.03	LCS	P	0 - 30
LFB	Toxaphene	6.54	LCS	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P401669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265128	Total Alkalinity	0.701	Sample	P	0 - 5.2

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P401673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265128	Fluoride	0.457	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P402249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264982	Organic Carbon	0.916	Spike	P	0 - 20

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2265137
Field Sample ID: G2SD0033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	65.9	P	29 - 92.0
EPA 8276	PCNB	81.0	P	43 - 134

Lab Sample ID: 2265138
Field Sample ID: G2SD0044

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	65.0	P	29 - 92.0
EPA 8276	PCNB	74.6	P	43 - 134

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A106851
Included Lab Sample IDs: 2265130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	97.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A106852
Included Lab Sample IDs: 2265128

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106874
Included Lab Sample IDs: 2265129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A106891
Included Lab Sample IDs: 2265128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A106891
Included Lab Sample IDs: 2265128

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: A106943
Included Lab Sample IDs: 2265129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	104	P/P	85 - 115

Reference Method: EPA 8276
Run ID: A107020
Included Lab Sample IDs: 2265137, 2265138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	98.3		P	80 - 120
Toxaphene	105		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A107071
Included Lab Sample IDs: 2265145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	96.3	98.7	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A107071
Included Lab Sample IDs: 2265145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.2	100	P/P	95 - 105
Iron	100	101	P/P	95 - 105
Magnesium	99.7	101	P/P	95 - 105
Manganese	98.4	102	P/P	95 - 105
Potassium	101	103	P/P	95 - 105
Sodium	102	104	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A107107
Included Lab Sample IDs: 2265145, 2265146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	99.8	P/P	90 - 110
Antimony	98.3	99.1	P/P	90 - 110
Arsenic	101	99.2	P/P	90 - 110
Boron	96.7	98.0	P/P	90 - 110
Cadmium	97.6	99.1	P/P	90 - 110
Chromium	98.6	98.2	P/P	90 - 110
Lead	98.5	98.9	P/P	90 - 110
Nickel	101	99.3	P/P	90 - 110
Selenium	97.3	96.9	P/P	90 - 110
Silver	94.8	95.1	P/P	90 - 110
Thallium	102	102	P/P	90 - 110
Zinc	98.6	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107121
Included Lab Sample IDs: 2265129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A107127
Included Lab Sample IDs: 2265146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.3	103	P/P	90 - 110
Iron	94.1	99.0	P/P	90 - 110
Magnesium	95.3	100	P/P	90 - 110
Manganese	98.0	104	P/P	90 - 110
Potassium	103	107	P/P	90 - 110
Sodium	97.6	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A107149
Included Lab Sample IDs: 2265129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	96.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A107160
Included Lab Sample IDs: 2265145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	95.1	92.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A107192
Included Lab Sample IDs: 2265146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	92.6	93.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A107194
Included Lab Sample IDs: 2265146

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107354
Included Lab Sample IDs: 2265129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.1	103	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							1.20	
EPA 200.7 Rev. 4.4	Barium	102		102	100	102			1.47
	Calcium	110		102	102	104			1.24
	Iron	106		99.3	103	104			0.676
	Magnesium	110		101	106	107			0.584
	Manganese	102		95.8	98.9	101			1.47
	Potassium	101		98.4	103	104			0.640
	Sodium	101		105	103	105			1.32
EPA 200.8 Rev. 5.4	Aluminum	96.9		96.5	94.7	95.6			1.77
	Antimony	96.9		97.0	94.9	96.5			2.13
	Arsenic	98.5		98.8	96.8	98.1			2.06
	Boron	97.6		97.3	95.3	99.4			1.86
	Cadmium	93.5		94.8	91.2	94.6			3.84
	Chromium	94.5		95.2	92.6	95.2			2.71
	Copper	95.8		93.1	92.4	94.1			0.816
	Copper	96.7		90.1	92.5	87.4			2.65
	Lead	95.7		94.6	93.2	95.7			1.44
	Nickel	97.9		101	96.4	95.6			4.47
	Selenium	96.9		96.9	95.7	97.5			1.22
	Silver	107		107	106	106			1.02
	Thallium	97.4		100	99.9	102			0.435
	Zinc	98.6		99.8	98.1	99.8			1.77
EPA 350.1 Rev. 2.0	Ammonia-N	101		102	101				0.394
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105		95.0	97.8				1.66
EPA 353.2 Rev. 2.0	NO2NO3-N	102		98.5	98.5				0.0
EPA 365.1 Rev. 2.0	Total-P	108		109	111				0.817
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100		94.4	94.8				0.423
EPA 8276	Chlordane	81.5	86.6	93.9	92.3		6.03		1.68
	Toxaphene	86.9	81.4	91.4	99.3		6.54		8.27
SM 2320 B-2011	Total Alkalinity	102						0.701	
SM 4500 F-C-2011	Fluoride	99.2							0.457
SM 5310 B-2011	Organic Carbon	96.4		101	99.6				0.916

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2265128
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2265145, 2265146
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2265145, 2265146
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2265129
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2265129
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2265129
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2265129
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2265130
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2265137, 2265138
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2265128
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2265145, 2265146
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2265128
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2265128
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2265129

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	07/27/2021			07/27/2021 15:40	Sarah A Nixon	2265128
EPA 200.7 Rev. 4.4	07/27/2021	07/29/2021 14:20	Elliott D. Healy	08/05/2021 16:20	Betina Topolski	2265145
	07/27/2021	07/29/2021 14:20	Elliott D. Healy	08/10/2021 01:10	Josef B Mick	2265146
	07/27/2021	07/29/2021 14:20	Elliott D. Healy	08/11/2021 16:26	Josef B Mick	2265146
EPA 200.8 Rev. 5.4	07/27/2021	07/29/2021 14:20	Elliott D. Healy	08/07/2021 07:47	Alexander Thompson	2265146
	07/27/2021	07/29/2021 14:20	Elliott D. Healy	08/07/2021 07:57	Alexander Thompson	2265145
	07/27/2021	08/09/2021 13:00	Elliott D. Healy	08/10/2021 14:01	Alexander Thompson	2265145
	07/27/2021	08/10/2021 13:10	Elliott D. Healy	08/11/2021 13:18	Alexander Thompson	2265146
EPA 350.1 Rev. 2.0	07/27/2021			08/09/2021 12:23	Ping Hua	2265129
EPA 351.2 Rev. 2.0	07/27/2021	08/18/2021 14:21	Benjamin T. Nordmann	08/19/2021 10:55	Virginia P. Brown	2265129
EPA 353.2 Rev. 2.0	07/27/2021			07/28/2021 10:54	Beverly Y. Sanders	2265129
EPA 365.1 Rev. 2.0	07/27/2021	07/29/2021 12:32	Simonne.V. Calhoun	07/30/2021 13:17	Shengyu Ding	2265129
EPA 365.1 Rev. 2.0 dissolved	07/27/2021			07/27/2021 15:15	Ping Hua	2265130
EPA 8276	07/27/2021	07/30/2021 08:00	Fe-Val Siddell	08/03/2021 07:48	Julie Wi	2265137
	07/27/2021	07/30/2021 08:00	Fe-Val Siddell	08/03/2021 08:43	Julie Wi	2265138
SM 2320 B-2011	07/27/2021			07/28/2021 20:31	Dale L. Simmons	2265128
SM 2340B	07/27/2021			08/05/2021 16:20	Betina Topolski	2265145
	07/27/2021			08/10/2021 01:10	Josef B Mick	2265146
SM 2540 D-2011	07/27/2021			07/30/2021 15:15	Yijie Li	2265128
SM 4500 F-C-2011	07/27/2021			07/28/2021 20:18	Dale L. Simmons	2265128
SM 5310 B-2011	07/27/2021			08/09/2021 21:15	Madeline Gruver	2265129