

Chemical Analysis Report

SE-DIST-2021-09-28-01

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

Event Description: **SMP - 3208B Deployment Q3 2021**
Request ID: **RQ-2021-09-13-56**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 22-OCT-2021 10:59



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: 09/27/2021 12:40

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278671	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P404327	
	SM 2320 B-2011	Total Alkalinity	126	A	mg CaCO3/L	P404537	
	SM 2540 D-2011	TSS	8	I	mg/L	P404763	
	SM 4500 F-C-2011	Fluoride	0.63		mg F/L	P404541	
2278672	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P404474	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P404398	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P404401	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P404581	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P405150	
2278673	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P404295	
2278677	EPA 8276	Chlordane	2.6	U	ng/L	P404269	
		Toxaphene	16	U	ng/L	P404269	
2278678	EPA 8321B	Acesulfame K	0.13	I	ug/L	P404276	
		2,4-D	0.077		ug/L	P404244	MS
		AMPA	1.0	U	ug/L	P404276	
		2,4,5-T	0.0040	U	ug/L	P404244	
		Acetaminophen	0.0080	U	ug/L	P404244	
		Endothall	0.25	U	ug/L	P404276	
		Acetamiprid	0.0020	U	ug/L	P404244	
		Glufosinate	1.0	U	ug/L	P404276	
		Glyphosate	1.0	U	ug/L	P404276	
		Afidopyropen	0.0020	U	ug/L	P404244	
		Sucralose	0.24		ug/L	P404276	
		Bentazon	0.024		ug/L	P404244	
		Benzovindiflupyr	0.0020	U	ug/L	P404244	
		Carbamazepine	9.0E-04	I	ug/L	P404244	
		Clothianidin	0.0049	I	ug/L	P404244	
		Dinotefuran	0.0022	I	ug/L	P404244	
		Diuron	0.021		ug/L	P404244	
		Fenuron	0.016	U	ug/L	P404244	
		Fluridone	0.0041		ug/L	P404244	
		Imazapyr	0.31		ug/L	P404244	
		Hydrocodone	0.0020	U	ug/L	P404244	
		Ibuprofen	0.020	U	ug/L	P404244	
		Imidacloprid	0.036		ug/L	P404244	MS
		Linuron	0.0040	U	ug/L	P404244	
		Mandestrobin	0.0020	U	ug/L	P404244	
		MCP	0.0055	I	ug/L	P404244	MS
		Naproxen	0.0080	U	ug/L	P404244	
		Primidone	0.0040	U	ug/L	P404244	
		Pyraclostrobin	0.0020	U	ug/L	P404244	
		Thiamethoxam	0.0087		ug/L	P404244	MS
		Tolfenpyrad	0.0020	U	ug/L	P404244	

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278678	EPA 8321B	Triclopyr	0.0040	U	ug/L	P404244	
2278679	EPA 200.7 Rev. 4.4	Calcium	180		mg/L	P404310	
		Chromium	3.3	I	ug/L	P404310	
		Iron	160	I	ug/L	P404310	
		Magnesium	483		mg/L	P404310	
		Manganese	11	I	ug/L	P404310	
		Zinc	18	I	ug/L	P404310	
	EPA 200.8 Rev. 5.4	Aluminum	79	I	ug/L	P404310	
		Antimony	0.20	U	ug/L	P404310	
		Arsenic	2.10		ug/L	P404310	
		Beryllium	0.040	U	ug/L	P404310	
		Cadmium	0.080	U	ug/L	P404310	
		Copper	2.3	I	ug/L	P404310	
		Lead	0.80	U	ug/L	P404310	
		Nickel	2.0	U	ug/L	P404310	
		Selenium	0.80	U	ug/L	P404310	
		Silver	0.040	U	ug/L	P404310	
		Thallium	0.40	U	ug/L	P404310	

Ref. Method and Comment:

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

EPA 8321B: MDL for some parameters elevated due to matrix interference.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium 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: P404327

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404310

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404310

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	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 350.1 Rev. 2.0
Batch ID: P404474

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404398

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404401

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404581

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: P404295

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

Reference Method: EPA 8276
 Batch ID: P404269

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: EPA 8321B
 Batch ID: P404244

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
 Batch ID: P404276

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P404537

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

Reference Method: SM 2540 D-2011
Batch ID: P404763

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404541

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P405150

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: P404310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Chromium	97.7		P	85 - 115
Iron	104		P	85 - 115
Magnesium	101		P	85 - 115
Manganese	100		P	85 - 115
Zinc	96.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P404310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.2		P	70 - 130
Antimony	100		P	70 - 130
Arsenic	93.5		P	70 - 130
Beryllium	89.5		P	70 - 130
Cadmium	94.7		P	70 - 130
Copper	94.6		P	70 - 130
Lead	97.2		P	70 - 130
Nickel	95.2		P	70 - 130
Selenium	96.5		P	70 - 130
Silver	100		P	70 - 130
Thallium	97.4		P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P404474

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P404398

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P404401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404581

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: P404295

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8276

Batch ID: P404269

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	88.3	76.8	P/P	56 - 117
Toxaphene	79.7	71.8	P/P	45 - 116

Reference Method: EPA 8321B

Batch ID: P404244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	98.0		P	40 - 150
2,4,5-T	110		P	40 - 150
Acetaminophen	77.8		P	30 - 150
Acetamiprid	86.7		P	40 - 150
Afidopyropen	74.5		P	40 - 150
Bentazon	96.4		P	30 - 150
Benzovindiflupyr	87.5		P	40 - 150
Carbamazepine	87.9		P	40 - 150
Clothianidin	79.5		P	40 - 150
Dinotefuran	87.3		P	40 - 150
Diuron	76.7		P	40 - 150
Fenuron	88.9		P	40 - 150
Fluridone	82.5		P	40 - 150
Hydrocodone	90.9		P	40 - 150
Ibuprofen	82.1		P	40 - 150
Imazapyr	86.4		P	40 - 150
Imidacloprid	93.2		P	40 - 150
Linuron	83.0		P	40 - 150
Mandestrobin	83.2		P	40 - 150
MCPP	113		P	40 - 150
Naproxen	99.4		P	40 - 150
Primidone	101		P	40 - 150
Pyraclostrobin	78.2		P	40 - 150
Thiamethoxam	93.0		P	40 - 150
Tolfenpyrad	47.7		P	30 - 150
Triclopyr	102		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P404276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	79.8		P	40 - 150
AMPA	92.7		P	40 - 160
Endothall	69.3		P	40 - 150
Glufosinate	97.9		P	40 - 160
Glyphosate	88.3		P	40 - 160
Sucralose	66.8		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P404537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P404541

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P405150

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P404310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278679	Chromium	91.3	95.3	P/P	70 - 130
2278679	Iron	97.5	102	P/P	70 - 130
2278679	Manganese	95.1	96.6	P/P	70 - 130
2278679	Zinc	92.1	93.5	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P404310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278679	Aluminum	105	102	P/P	70 - 130
2278679	Antimony	105	106	P/P	70 - 130
2278679	Arsenic	102	99.0	P/P	70 - 130
2278679	Beryllium	112	114	P/P	70 - 130
2278679	Cadmium	90.9	92.1	P/P	70 - 130
2278679	Copper	108	108	P/P	70 - 130
2278679	Lead	103	104	P/P	70 - 130
2278679	Nickel	105	106	P/P	70 - 130
2278679	Selenium	102	96.8	P/P	70 - 130
2278679	Silver	91.4	92.0	P/P	70 - 130
2278679	Thallium	99.4	103	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P404474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278803	Ammonia-N	95.6	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P404398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278672	Kjeldahl Nitrogen	98.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P404401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278672	NO2NO3-N	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404581

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278209	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278673	O-Phosphate-P	97.7	96.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8276

Batch ID: P404269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278677	Chlordane	81.7	77.0	P/P	47 - 128
2278677	Toxaphene	83.6	79.7	P/P	11 - 163

Reference Method: EPA 8321B

Batch ID: P404244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277943	2,4-D	152	157	F/F	40 - 150
2277943	2,4,5-T	128	129	P/P	40 - 150
2277943	Acetaminophen	122	123	P/P	30 - 150
2277943	Acetamiprid	105	106	P/P	40 - 150
2277943	Afidopyropen	75.3	86.0	P/P	40 - 150
2277943	Bentazon	94.4	88.5	P/P	30 - 150
2277943	Benzovindiflupyr	87.9	82.7	P/P	40 - 150
2277943	Carbamazepine	111	119	P/P	40 - 150
2277943	Clothianidin	111	120	P/P	40 - 150
2277943	Dinotefuran	132	132	P/P	40 - 150
2277943	Diuron	93.7	85.4	P/P	40 - 150
2277943	Fenuron	98.0	92.7	P/P	40 - 150
2277943	Fluridone	83.9	84.5	P/P	40 - 150
2277943	Hydrocodone	117	104	P/P	40 - 150
2277943	Ibuprofen	88.2	69.0	P/P	40 - 150
2277943	Imazapyr	123	126	P/P	40 - 150
2277943	Imidacloprid	166	177	F/F	40 - 150
2277943	Linuron	73.5	84.0	P/P	40 - 150
2277943	Mandestrobin	95.7	95.5	P/P	40 - 150
2277943	MCPP	141	154	P/F	40 - 150
2277943	Naproxen	112	89.1	P/P	40 - 150
2277943	Primidone	115	139	P/P	40 - 150
2277943	Pyraclostrobin	81.9	84.0	P/P	40 - 150
2277943	Thiamethoxam	167	166	F/F	40 - 150
2277943	Tolfenpyrad	57.3	56.5	P/P	30 - 150
2277943	Triclopyr	115	132	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P404276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278459	Acesulfame K	105	112	P/P	40 - 150
2278459	AMPA	96.6	94.8	P/P	40 - 160
2278459	Endothall	94.8	96.1	P/P	40 - 150
2278459	Glufosinate	101	103	P/P	40 - 160
2278459	Glyphosate	80.4	79.9	P/P	40 - 160
2278459	Sucralose	77.1	76.4	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P404541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278671	Fluoride	102	101	P/P	92 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P405150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280222	Organic Carbon	93.3	93.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278427	Turbidity	1.63	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278679	Calcium	2.47	Spike	P	0 - 20
2278679	Chromium	4.13	Spike	P	0 - 20
2278679	Iron	4.36	Spike	P	0 - 20
2278679	Magnesium	1.61	Spike	P	0 - 20
2278679	Manganese	1.46	Spike	P	0 - 20
2278679	Zinc	1.44	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278679	Aluminum	3.52	Spike	P	0 - 20
2278679	Antimony	1.04	Spike	P	0 - 20
2278679	Arsenic	2.61	Spike	P	0 - 20
2278679	Beryllium	2.01	Spike	P	0 - 20
2278679	Cadmium	1.36	Spike	P	0 - 20
2278679	Copper	0.121	Spike	P	0 - 20
2278679	Lead	0.991	Spike	P	0 - 20
2278679	Nickel	1.07	Spike	P	0 - 20
2278679	Selenium	5.77	Spike	P	0 - 20
2278679	Silver	0.673	Spike	P	0 - 20
2278679	Thallium	4.00	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278803	Ammonia-N	0.379	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278672	Kjeldahl Nitrogen	1.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278672	NO2NO3-N	0.354	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404581

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278209	Total-P	1.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404295

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278673	O-Phosphate-P	0.589	Spike	P	0 - 20

Reference Method: EPA 8276

Batch ID: P404269

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278677	Chlordane	5.86	Spike	P	0 - 30
2278677	Toxaphene	4.79	Spike	P	0 - 30
LFB	Chlordane	13.9	LCS	P	0 - 30
LFB	Toxaphene	10.5	LCS	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P404244

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2277943	2,4-D	3.02	Spike	P	0 - 30
2277943	2,4,5-T	0.588	Spike	P	0 - 30
2277943	Acetaminophen	0.885	Spike	P	0 - 30
2277943	Acetamiprid	1.65	Spike	P	0 - 30
2277943	Afidopyropen	13.3	Spike	P	0 - 30
2277943	Bentazon	6.47	Spike	P	0 - 30
2277943	Benzovindiflupyr	6.08	Spike	P	0 - 30
2277943	Carbamazepine	6.75	Spike	P	0 - 30
2277943	Clothianidin	7.96	Spike	P	0 - 30
2277943	Dinotefuran	0.175	Spike	P	0 - 30
2277943	Diuron	9.19	Spike	P	0 - 30
2277943	Fenuron	5.58	Spike	P	0 - 30
2277943	Fluridone	0.681	Spike	P	0 - 30
2277943	Hydrocodone	11.1	Spike	P	0 - 30
2277943	Ibuprofen	24.4	Spike	P	0 - 30
2277943	Imazapyr	1.72	Spike	P	0 - 30
2277943	Imidacloprid	6.11	Spike	P	0 - 30
2277943	Linuron	13.4	Spike	P	0 - 30
2277943	Mandestrobin	0.222	Spike	P	0 - 30
2277943	MCPP	8.82	Spike	P	0 - 30
2277943	Naproxen	23.2	Spike	P	0 - 30
2277943	Primidone	18.9	Spike	P	0 - 30
2277943	Pyraclostrobin	2.52	Spike	P	0 - 30
2277943	Thiamethoxam	0.807	Spike	P	0 - 30
2277943	Tolfenpyrad	1.34	Spike	P	0 - 30
2277943	Triclopyr	13.2	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P404276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278459	Acesulfame K	6.01	Spike	P	0 - 30
2278459	AMPA	1.90	Spike	P	0 - 30
2278459	Endothall	1.35	Spike	P	0 - 30
2278459	Glufosinate	1.93	Spike	P	0 - 30
2278459	Glyphosate	0.672	Spike	P	0 - 30
2278459	Sucralose	0.911	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P404537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278671	Total Alkalinity	2.24	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011

Batch ID: P404541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278671	Fluoride	0.460	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P405150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280222	Organic Carbon	0.251	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2278677
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	71.3	P	29 - 92.0
EPA 8276	PCNB	79.8	P	43 - 134

Lab Sample ID: 2278678
Field Sample ID: G2SE0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	137	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	134	P	30 - 160
EPA 8321B	Diuron-d6	101	P	30 - 160
EPA 8321B	Endothall-d6	82.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	61.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	55.4	P	30 - 160
EPA 8321B	Primidone-d5	116	P	30 - 160
EPA 8321B	Sucralose-d6	71.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108036

Included Lab Sample IDs: 2278673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	97.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108043

Included Lab Sample IDs: 2278678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	106	P/P	50 - 150
2,4,5-T	93.6	111	P/P	50 - 150
Acetaminophen	97.9	107	P/P	60 - 160
Acetamiprid	111	105	P/P	50 - 150
Afidopyropen	112	142	P/P	50 - 150
Bentazon	111	101	P/P	50 - 160
Benzovindiflupyr	108	109	P/P	50 - 150
Carbamazepine	108	106	P/P	60 - 150
Clothianidin	102	97.3	P/P	60 - 150
Dinotefuran	102	103	P/P	50 - 150
Diuron	102	104	P/P	60 - 160
Fenuron	104	99.8	P/P	60 - 150
Fluridone	99.2	109	P/P	60 - 160
Hydrocodone	105	107	P/P	60 - 150
Ibuprofen	123	125	P/P	50 - 160
Imazapyr	77.5	91.6	P/P	50 - 150
Imidacloprid	99.4	94.8	P/P	60 - 150
Linuron	102	127	P/P	60 - 150
Mandestrobin	109	114	P/P	50 - 150
MCPP	99.9	104	P/P	50 - 150
Naproxen	109	103	P/P	50 - 160
Primidone	135	115	P/P	60 - 150
Pyraclostrobin	101	107	P/P	60 - 150
Thiamethoxam	97.7	112	P/P	50 - 150
Tolfenpyrad	95.9	108	P/P	60 - 150
Triclopyr	104	110	P/P	50 - 150

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108050

Included Lab Sample IDs: 2278671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108062

Included Lab Sample IDs: 2278679

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	101	P/P	90 - 110
Chromium	98.9	99.1	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	99.7	102	P/P	90 - 110
Manganese	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108062

Included Lab Sample IDs: 2278679

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	96.5	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108076

Included Lab Sample IDs: 2278672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108094

Included Lab Sample IDs: 2278678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	97.3	99.9	P/P	60 - 160
Glufosinate	104	112	P/P	60 - 160
Glyphosate	98.7	97.3	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108109

Included Lab Sample IDs: 2278672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108117

Included Lab Sample IDs: 2278678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	81.1	80.3	P/P	60 - 160
Endothall	89.1	86.5	P/P	60 - 160
Sucralose	81.5	82.6	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108124

Included Lab Sample IDs: 2278679

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.9	98.5	P/P	90 - 110
Antimony	101	102	P/P	90 - 110
Arsenic	95.6	94.9	P/P	90 - 110
Beryllium	93.4	97.5	P/P	90 - 110
Cadmium	94.8	94.9	P/P	90 - 110
Copper	97.6	101	P/P	90 - 110
Lead	94.0	93.6	P/P	90 - 110
Nickel	97.0	100	P/P	90 - 110
Selenium	96.1	97.7	P/P	90 - 110
Silver	98.9	98.4	P/P	90 - 110
Thallium	96.6	96.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A108136

Included Lab Sample IDs: 2278671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.5	95.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108136

Included Lab Sample IDs: 2278671

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

Reference Method: EPA 8276

Run ID: A108169

Included Lab Sample IDs: 2278677

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	97.2		P	80 - 120
Toxaphene	98.8		P	80 - 120

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108206

Included Lab Sample IDs: 2278672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108209

Included Lab Sample IDs: 2278672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	107	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A108370

Included Lab Sample IDs: 2278672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.9	94.4	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.63	
EPA 200.7 Rev. 4.4	Calcium	102						2.47
	Chromium	97.7		91.3	95.3			4.13
	Iron	104		97.5	102			4.36
	Magnesium	101						1.61
	Manganese	100		95.1	96.6			1.46
	Zinc	96.3		92.1	93.5			1.44
EPA 200.8 Rev. 5.4	Aluminum	96.2		105	102			3.52
	Antimony	100		105	106			1.04
	Arsenic	93.5		102	99.0			2.61
	Beryllium	89.5		112	114			2.01
	Cadmium	94.7		90.9	92.1			1.36
	Copper	94.6		108	108			0.121
	Lead	97.2		103	104			0.991
	Nickel	95.2		105	106			1.07
	Selenium	96.5		102	96.8			5.77
	Silver	100		91.4	92.0			0.673
	Thallium	97.4		99.4	103			4.00
EPA 350.1 Rev. 2.0	Ammonia-N	95.4		95.6	96.0			0.379
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8		98.1	100			1.77
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5		100	99.8			0.354
EPA 365.1 Rev. 2.0	Total-P	103		105	103			1.24
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100		97.7	96.6			0.589
EPA 8276	Chlordane	88.3	76.8	81.7	77.0	13.9		5.86
	Toxaphene	79.7	71.8	83.6	79.7	10.5		4.79
EPA 8321B	2,4-D	98.0		152	157			3.02
	2,4,5-T	110		128	129			0.588
	Acesulfame K	79.8		105	112			6.01
	Acetaminophen	77.8		122	123			0.885
	Acetamiprid	86.7		105	106			1.65
	Afidopyropen	74.5		75.3	86.0			13.3
	AMPA	92.7		96.6	94.8			1.90
	Bentazon	96.4		94.4	88.5			6.47
	Benzovindiflupyr	87.5		87.9	82.7			6.08
	Carbamazepine	87.9		111	119			6.75
	Clothianidin	79.5		111	120			7.96
	Dinotefuran	87.3		132	132			0.175
	Diuron	76.7		93.7	85.4			9.19
	Endothall	69.3		94.8	96.1			1.35
	Fenuron	88.9		98.0	92.7			5.58
	Fluridone	82.5		83.9	84.5			0.681
	Glufosinate	97.9		101	103			1.93
	Glyphosate	88.3		80.4	79.9			0.672
	Hydrocodone	90.9		117	104			11.1
	Ibuprofen	82.1		88.2	69.0			24.4
	Imazapyr	86.4		123	126			1.72
	Imidacloprid	93.2		166	177			6.11
	Linuron	83.0		73.5	84.0			13.4
	Mandestrobin	83.2		95.7	95.5			0.222
	MCPP	113		141	154			8.82
	Naproxen	99.4		112	89.1			23.2
	Primidone	101		115	139			18.9
	Pyraclostrobin	78.2		81.9	84.0			2.52
	Sucralose	66.8		77.1	76.4			0.911

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 8321B	Thiamethoxam	93.0	167 166			0.807
	Tolfenpyrad	47.7	57.3 56.5			1.34
	Triclopyr	102	115 132			13.2
SM 2320 B-2011	Total Alkalinity	101			2.24	
SM 4500 F-C-2011	Fluoride	101	102 101			0.460
SM 5310 B-2011	Organic Carbon	97.4	93.3 93.0			0.251

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2278671
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2278679
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2278679
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2278672
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2278672
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2278672
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2278672
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2278673
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2278677
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2278678
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2278671
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2278671
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2278671
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2278672

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	09/28/2021			09/28/2021 16:48	Khloe J Berg	2278671
EPA 200.7 Rev. 4.4	09/28/2021	09/29/2021 09:45	Emily M Philpot	09/29/2021 23:54	Josef B Mick	2278679
	09/28/2021	09/29/2021 09:45	Emily M Philpot	09/30/2021 01:07	Josef B Mick	2278679
EPA 200.8 Rev. 5.4	09/28/2021	09/29/2021 09:45	Emily M Philpot	10/02/2021 03:49	McKinley C Carter	2278679
	09/28/2021	09/29/2021 09:45	Emily M Philpot	10/02/2021 05:01	McKinley C Carter	2278679
EPA 350.1 Rev. 2.0	09/28/2021			10/01/2021 12:28	Ping Hua	2278672
EPA 351.2 Rev. 2.0	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/07/2021 12:13	Alexandra J Mattheus	2278672
EPA 353.2 Rev. 2.0	09/28/2021			09/30/2021 10:43	Beverly Y. Sanders	2278672
EPA 365.1 Rev. 2.0	09/28/2021	10/05/2021 13:20	Simonne.V. Calhoun	10/06/2021 13:57	Lipi Saha	2278672
EPA 365.1 Rev. 2.0 dissolved	09/28/2021			09/28/2021 15:23	James L Waggeberby	2278673
EPA 8276	09/28/2021	09/29/2021 08:00	Fe-Val Siddell	10/05/2021 03:53	Julie Wi	2278677
EPA 8321B	09/28/2021	09/28/2021 14:00	Hoor Shaik	09/29/2021 06:03	Juyoung Kim	2278678
	09/28/2021	09/30/2021 13:00	Juyoung Kim	09/30/2021 16:20	Juyoung Kim	2278678
	09/28/2021	09/30/2021 13:00	Juyoung Kim	10/01/2021 12:05	Manjita Shrestha	2278678
SM 2320 B-2011	09/28/2021			10/01/2021 05:22	Dale L. Simmons	2278671
SM 2540 D-2011	09/28/2021			09/30/2021 15:26	Yijie Li	2278671
SM 4500 F-C-2011	09/28/2021			10/01/2021 04:46	Dale L. Simmons	2278671
SM 5310 B-2011	09/28/2021			10/14/2021 06:05	Khloe J Berg	2278672