

Chemical Analysis Report

NE-DIST-2022-03-16-01

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

Event Description: **Pellicer Creek Boat**
Request ID: **RQ-2022-03-14-15**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-APR-2022 15:06

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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 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: Stevens Branch East Branch at CR204

Collection Date/Time: 03/15/2022 10:15

Field ID: G5NE0600

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2312858	EPA 8321B	2,4-D	0.0020	U	ug/L	P411262	
		Acesulfame K	0.10	U	ug/L	P411170	
		2,4,5-T	0.0040	U	ug/L	P411262	
		AMPA	0.10	U	ug/L	P411170	
		Acetaminophen	0.0080	U	ug/L	P411262	
		Acetamiprid	0.0020	U	ug/L	P411262	
		Endothall	0.25	U	ug/L	P411170	
		Glufosinate	0.10	U	ug/L	P411170	
		Glyphosate	0.10	U	ug/L	P411170	
		Afidopyropen	0.0020	U	ug/L	P411262	
		Bentazon	8.0E-04	U	ug/L	P411262	
		Sucralose	0.010	U	ug/L	P411170	
		Benzovindiflupyr	0.0020	U	ug/L	P411262	
		Carbamazepine	8.0E-04	U	ug/L	P411262	
		Clothianidin	0.0020	U	ug/L	P411262	
		Dinotefuran	0.0020	U	ug/L	P411262	
		Diuron	0.0020	U	ug/L	P411262	
		Fenuron	0.016	U	ug/L	P411262	
		Fluridone	8.0E-04	U	ug/L	P411262	
		Imazapyr	0.011	I	ug/L	P411262	
		Hydrocodone	0.0020	U	ug/L	P411262	
		Ibuprofen	0.020	U	ug/L	P411262	
		Imidacloprid	0.0020	U	ug/L	P411262	MS
		Linuron	0.0040	U	ug/L	P411262	
		Mandestrobin	0.0020	U	ug/L	P411262	
		MCPP	0.0020	U	ug/L	P411262	
		Naproxen	0.0080	U	ug/L	P411262	
		Primidone	0.0040	U	ug/L	P411262	
		Pyraclostrobin	0.0020	U	ug/L	P411262	
		Silvex	0.0040	U	ug/L	P411262	
		Thiamethoxam	0.0020	U	ug/L	P411262	MS
		Tolfenpyrad	0.0020	U	ug/L	P411262	
		Triclopyr	0.0040	U	ug/L	P411262	

Sample Location: Pellicer Creek @ Styles Creek

Collection Date/Time: 03/15/2022 11:30

Field ID: G5NE0592

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2312859	EPA 200.7 Rev. 4.4	Calcium	101		mg/L	P411446	
		Iron	520		ug/L	P411446	
		Magnesium	261		mg/L	P411446	
		Strontium	1.58E+03		ug/L	P411446	
		Tin	60	U	ug/L	P411446	
		Vanadium	6.0	U	ug/L	P411446	
	EPA 200.8 Rev. 5.4	Zinc	15	U	ug/L	P411446	
		Aluminum	403		ug/L	P411446	
		Antimony	0.20	U	ug/L	P411446	
		Arsenic	1.24		ug/L	P411446	
		Beryllium	0.043	I	ug/L	P411446	
		Cadmium	0.080	U	ug/L	P411446	
		Chromium	1.6	U	ug/L	P411446	
		Cobalt	0.14	I	ug/L	P411446	
		Copper	1.6	U	ug/L	P411446	
		Lead	0.80	U	ug/L	P411446	
		Manganese	14.9		ug/L	P411446	
		Molybdenum	2.6		ug/L	P411446	
		Nickel	2.0	U	ug/L	P411446	
		Selenium	0.80	U	ug/L	P411446	
		Silver	0.040	U	ug/L	P411446	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium and strontium are unavailable because of high analyte concentration in the QC sample.

Sample Location: PELLICER CR. AT FAVER DYKES BT. RMP.

Collection Date/Time: 03/15/2022 11:55

Field ID: 27010965

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2312860	EPA 200.7 Rev. 4.4	Calcium	33.9		mg/L	P411211	
		Iron	750		ug/L	P411211	
		Magnesium	46.9		mg/L	P411211	
		Strontium	385		ug/L	P411211	
		Tin	3.0	U	ug/L	P411211	
		Vanadium	2.0	U	ug/L	P411211	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P411211	
		Aluminum	470		ug/L	P411384	
		Antimony	0.059	I	ug/L	P411211	
		Arsenic	0.81		ug/L	P411211	
		Beryllium	0.051		ug/L	P411211	
		Cadmium	0.020	U	ug/L	P411211	
		Chromium	0.93	I	ug/L	P411211	
		Cobalt	0.149		ug/L	P411211	
		Copper	0.59	I	ug/L	P411211	
		Lead	0.46		ug/L	P411211	
		Manganese	11.1		ug/L	P411211	
		Molybdenum	0.55	I	ug/L	P411211	
		Nickel	0.54	I	ug/L	P411211	
		Selenium	0.20	U	ug/L	P411211	
		Silver	0.010	U	ug/L	P411211	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P411211

Component	Result	Code	Units
Calcium	0.11	I	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P411446

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411211

Component	Result	Code	Units
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411384

Component	Result	Code	Units
Aluminum	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411446

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411446

Component	Result	Code	Units
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 8321B

Batch ID: P411170

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

Reference Method: EPA 8321B

Batch ID: P411262

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
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P411262

Component	Result	Code	Units
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P411211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	109		P	85 - 115
Magnesium	111		P	85 - 115
Strontium	109		P	85 - 115
Tin	106		P	85 - 115
Vanadium	98.2		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P411446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	106		P	85 - 115
Magnesium	105		P	85 - 115
Strontium	103		P	85 - 115
Tin	104		P	85 - 115
Vanadium	95.7		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Antimony	99.9		P	85 - 115
Arsenic	99.4		P	85 - 115
Beryllium	97.3		P	85 - 115
Cadmium	99.8		P	85 - 115
Chromium	97.6		P	85 - 115
Cobalt	98.5		P	85 - 115
Copper	97.2		P	85 - 115
Lead	97.1		P	85 - 115
Manganese	98.6		P	85 - 115
Molybdenum	98.1		P	85 - 115
Nickel	98.8		P	85 - 115
Selenium	99.8		P	85 - 115
Silver	98.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411384

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.2		P	85 - 115
Antimony	98.2		P	85 - 115
Arsenic	96.6		P	85 - 115
Beryllium	92.4		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cadmium	97.0		P	85 - 115
Chromium	95.1		P	85 - 115
Cobalt	96.7		P	85 - 115
Copper	93.7		P	85 - 115
Lead	95.0		P	85 - 115
Manganese	96.2		P	85 - 115
Molybdenum	96.8		P	85 - 115
Nickel	95.7		P	85 - 115
Selenium	97.0		P	85 - 115
Silver	97.8		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P411170

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	94.1		P	40 - 150
AMPA	95.4		P	40 - 150
Endothall	93.2		P	40 - 150
Glufosinate	101		P	40 - 150
Glyphosate	95.1		P	40 - 150
Sucralose	86.4		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P411262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	56.3		P	30 - 160
2,4,5-T	44.5		P	30 - 160
Acetaminophen	82.9		P	30 - 150
Acetamiprid	73.6		P	30 - 160
Afidopyropen	51.3		P	30 - 160
Bentazon	85.2		P	30 - 150
Benzovindiflupyr	72.0		P	30 - 160
Carbamazepine	67.7		P	30 - 160
Clothianidin	96.1		P	30 - 160
Dinotefuran	93.7		P	30 - 160
Diuron	54.3		P	30 - 160
Fenuron	106		P	30 - 160
Fluridone	69.7		P	30 - 160
Hydrocodone	92.4		P	30 - 160
Ibuprofen	56.8		P	30 - 160
Imazapyr	88.3		P	30 - 160
Imidacloprid	80.1		P	30 - 160
Linuron	70.3		P	30 - 160
Mandestrobin	53.1		P	30 - 160
MCPP	59.3		P	30 - 160
Naproxen	67.5		P	30 - 160
Primidone	76.6		P	30 - 160
Pyraclostrobin	64.8		P	30 - 160
Silvex	37.0		P	30 - 160
Thiamethoxam	93.0		P	30 - 160
Tolfenpyrad	37.9		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P411262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Triclopyr	43.7		P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P411211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312488	Calcium	104		P	80 - 120
2312488	Iron	106		P	80 - 120
2312488	Magnesium	106		P	80 - 120
2312488	Strontium	108		P	80 - 120
2312488	Tin	106		P	80 - 120
2312488	Vanadium	100		P	80 - 120
2312488	Zinc	108		P	80 - 120
2312489	Calcium	103		P	80 - 120
2312489	Iron	99.2	102	P/P	80 - 120
2312489	Magnesium	102	105	P/P	80 - 120
2312489	Strontium	103	105	P/P	80 - 120
2312489	Tin	102	103	P/P	80 - 120
2312489	Vanadium	95.5	97.6	P/P	80 - 120
2312489	Zinc	103	105	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P411446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313210	Iron	97.8	101	P/P	70 - 130
2313210	Tin	71.8	81.7	P/P	70 - 130
2313210	Vanadium	95.7	95.4	P/P	70 - 130
2313210	Zinc	93.2	94.8	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312488	Antimony	102		P	80 - 120
2312488	Arsenic	103		P	80 - 120
2312488	Beryllium	101		P	80 - 120
2312488	Cadmium	101		P	80 - 120
2312488	Chromium	102		P	80 - 120
2312488	Cobalt	102		P	80 - 120
2312488	Copper	102		P	80 - 120
2312488	Lead	99.0		P	80 - 120
2312488	Manganese	105		P	80 - 120
2312488	Molybdenum	101		P	80 - 120
2312488	Nickel	103		P	80 - 120
2312488	Selenium	103		P	80 - 120
2312488	Silver	99.1		P	80 - 120
2312489	Antimony	98.6	98.1	P/P	80 - 120
2312489	Arsenic	98.9	99.0	P/P	80 - 120
2312489	Beryllium	97.2	98.6	P/P	80 - 120
2312489	Cadmium	99.6	102	P/P	80 - 120
2312489	Chromium	98.7	102	P/P	80 - 120
2312489	Cobalt	99.8	100	P/P	80 - 120
2312489	Copper	97.9	99.3	P/P	80 - 120
2312489	Lead	97.0	98.1	P/P	80 - 120
2312489	Manganese	100	105	P/P	80 - 120
2312489	Molybdenum	98.3	99.2	P/P	80 - 120
2312489	Nickel	99.6	101	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312489	Selenium	97.2	98.5	P/P	80 - 120
2312489	Silver	96.4	98.3	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313385	Aluminum	99.5	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2313210	Aluminum	103	107	P/P	70 - 130
2313210	Antimony	98.6	100	P/P	70 - 130
2313210	Arsenic	109	110	P/P	70 - 130
2313210	Beryllium	106	106	P/P	70 - 130
2313210	Cadmium	89.8	94.2	P/P	70 - 130
2313210	Chromium	97.5	98.2	P/P	70 - 130
2313210	Cobalt	112	113	P/P	70 - 130
2313210	Copper	102	103	P/P	70 - 130
2313210	Lead	101	102	P/P	70 - 130
2313210	Manganese	95.1	96.2	P/P	70 - 130
2313210	Molybdenum	110	113	P/P	70 - 130
2313210	Nickel	108	111	P/P	70 - 130
2313210	Selenium	96.2	99.2	P/P	70 - 130
2313210	Silver	86.1	88.2	P/P	70 - 130

Reference Method: EPA 8321B

Batch ID: P411170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312858	Acesulfame K	82.9	83.1	P/P	40 - 150
2312858	AMPA	95.4	102	P/P	40 - 150
2312858	Endothall	102	106	P/P	40 - 150
2312858	Glufosinate	84.3	93.3	P/P	40 - 150
2312858	Glyphosate	84.4	88.7	P/P	40 - 150
2312858	Sucralose	80.9	95.0	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P411262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312452	2,4-D	69.0	59.8	P/P	30 - 160
2312452	2,4,5-T	58.5	65.2	P/P	30 - 160
2312452	Acetaminophen	103	105	P/P	30 - 150
2312452	Acetamiprid	98.6	87.1	P/P	30 - 160
2312452	Afidopyropen	57.9	55.4	P/P	30 - 160
2312452	Bentazon	92.4	103	P/P	30 - 150
2312452	Benzovindiflupyr	76.1	78.1	P/P	30 - 160
2312452	Carbamazepine	80.4	77.8	P/P	30 - 160
2312452	Clothianidin	128	126	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P411262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2312452	Dinotefuran	124	119	P/P	30 - 160
2312452	Diuron	52.2	45.3	P/P	30 - 160
2312452	Fenuron	132	152	P/P	30 - 160
2312452	Fluridone	65.8	68.2	P/P	30 - 160
2312452	Hydrocodone	103	112	P/P	30 - 160
2312452	Ibuprofen	51.3	56.8	P/P	30 - 160
2312452	Imazapyr	130	111	P/P	30 - 160
2312452	Imidacloprid	212	203	F/F	30 - 160
2312452	Linuron	84.9	79.7	P/P	30 - 160
2312452	Mandestrobin	64.3	60.9	P/P	30 - 160
2312452	MCPP	86.8	79.1	P/P	30 - 160
2312452	Naproxen	74.6	74.8	P/P	30 - 160
2312452	Primidone	124	92.4	P/P	30 - 160
2312452	Pyraclostrobin	80.0	80.3	P/P	30 - 160
2312452	Silvex	59.9	58.3	P/P	30 - 160
2312452	Thiamethoxam	174	175	F/F	30 - 160
2312452	Tolfenpyrad	55.2	46.1	P/P	30 - 160
2312452	Triclopyr	60.0	53.8	P/P	30 - 160

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P411211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312489	Calcium	1.01	Spike	P	0 - 20
2312489	Iron	1.99	Spike	P	0 - 20
2312489	Magnesium	2.21	Spike	P	0 - 20
2312489	Strontium	1.85	Spike	P	0 - 20
2312489	Tin	0.843	Spike	P	0 - 20
2312489	Vanadium	2.12	Spike	P	0 - 20
2312489	Zinc	2.11	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P411446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313210	Calcium	2.92	Spike	P	0 - 20
2313210	Iron	3.07	Spike	P	0 - 20
2313210	Magnesium	2.54	Spike	P	0 - 20
2313210	Strontium	2.43	Spike	P	0 - 20
2313210	Tin	12.9	Spike	P	0 - 20
2313210	Vanadium	0.333	Spike	P	0 - 20
2313210	Zinc	1.72	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312489	Antimony	0.482	Spike	P	0 - 20
2312489	Arsenic	0.0390	Spike	P	0 - 20
2312489	Beryllium	1.19	Spike	P	0 - 20
2312489	Cadmium	2.02	Spike	P	0 - 20
2312489	Chromium	3.64	Spike	P	0 - 20
2312489	Cobalt	0.585	Spike	P	0 - 20
2312489	Copper	1.42	Spike	P	0 - 20
2312489	Lead	1.08	Spike	P	0 - 20
2312489	Manganese	2.23	Spike	P	0 - 20
2312489	Molybdenum	0.924	Spike	P	0 - 20
2312489	Nickel	1.25	Spike	P	0 - 20
2312489	Selenium	1.32	Spike	P	0 - 20
2312489	Silver	1.94	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P411384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313385	Aluminum	1.05	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P411446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2313210	Aluminum	3.50	Spike	P	0 - 20
2313210	Antimony	1.69	Spike	P	0 - 20
2313210	Arsenic	1.44	Spike	P	0 - 20
2313210	Beryllium	0.197	Spike	P	0 - 20
2313210	Cadmium	4.82	Spike	P	0 - 20
2313210	Chromium	0.735	Spike	P	0 - 20
2313210	Cobalt	1.20	Spike	P	0 - 20
2313210	Copper	0.935	Spike	P	0 - 20
2313210	Lead	1.61	Spike	P	0 - 20
2313210	Manganese	0.861	Spike	P	0 - 20
2313210	Molybdenum	1.95	Spike	P	0 - 20
2313210	Nickel	2.32	Spike	P	0 - 20
2313210	Selenium	3.11	Spike	P	0 - 20
2313210	Silver	2.46	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P411170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312858	Acesulfame K	0.268	Spike	P	0 - 30
2312858	AMPA	6.92	Spike	P	0 - 30
2312858	Endothall	3.00	Spike	P	0 - 30
2312858	Glufosinate	10.1	Spike	P	0 - 30
2312858	Glyphosate	5.02	Spike	P	0 - 30
2312858	Sucralose	15.9	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P411262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312452	2,4-D	10.1	Spike	P	0 - 30
2312452	2,4,5-T	10.9	Spike	P	0 - 30
2312452	Acetaminophen	1.44	Spike	P	0 - 30
2312452	Acetamiprid	12.4	Spike	P	0 - 30
2312452	Afidopyropen	4.29	Spike	P	0 - 30
2312452	Bentazon	6.68	Spike	P	0 - 30
2312452	Benzovindiflupyr	2.67	Spike	P	0 - 30
2312452	Carbamazepine	3.30	Spike	P	0 - 30
2312452	Clothianidin	1.75	Spike	P	0 - 30
2312452	Dinotefuran	3.15	Spike	P	0 - 30
2312452	Diuron	9.63	Spike	P	0 - 30
2312452	Fenuron	11.5	Spike	P	0 - 30
2312452	Fluridone	3.71	Spike	P	0 - 30
2312452	Hydrocodone	8.85	Spike	P	0 - 30
2312452	Ibuprofen	10.2	Spike	P	0 - 30
2312452	Imazapyr	10.7	Spike	P	0 - 30
2312452	Imidacloprid	4.20	Spike	P	0 - 30
2312452	Linuron	6.27	Spike	P	0 - 30
2312452	Mandestrobin	5.53	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P411262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2312452	MCP	9.29	Spike	P	0 - 30
2312452	Naproxen	0.262	Spike	P	0 - 30
2312452	Primidone	28.8	Spike	P	0 - 30
2312452	Pyraclostrobin	0.361	Spike	P	0 - 30
2312452	Silvex	2.71	Spike	P	0 - 30
2312452	Thiamethoxam	0.767	Spike	P	0 - 30
2312452	Tolfenpyrad	17.8	Spike	P	0 - 30
2312452	Triclopyr	10.9	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2312858

Field Sample ID: G5NE0600

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	76.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	75.1	P	30 - 160
EPA 8321B	Diuron-d6	42.7	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	91.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.3	P	30 - 160
EPA 8321B	Primidone-d5	130	P	30 - 160
EPA 8321B	Sucralose-d6	133	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111050

Included Lab Sample IDs: 2312860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	97.4	95.7	P/P	90 - 110
Arsenic	101	98.3	P/P	90 - 110
Beryllium	99.0	97.5	P/P	90 - 110
Cadmium	99.2	98.5	P/P	90 - 110
Chromium	98.5	98.1	P/P	90 - 110
Cobalt	98.5	98.6	P/P	90 - 110
Copper	99.5	98.7	P/P	90 - 110
Lead	95.8	95.1	P/P	90 - 110
Manganese	98.7	99.3	P/P	90 - 110
Molybdenum	99.3	98.0	P/P	90 - 110
Nickel	99.7	99.5	P/P	90 - 110
Selenium	98.4	98.3	P/P	90 - 110
Silver	95.5	95.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A111076

Included Lab Sample IDs: 2312858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	95.4	95.3	P/P	60 - 160
Endothall	97.9	99.1	P/P	60 - 160
Glufosinate	95.4	97.0	P/P	60 - 160
Glyphosate	99.0	95.2	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A111077

Included Lab Sample IDs: 2312858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	99.9	103	P/P	60 - 160
Sucralose	103	91.0	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111092

Included Lab Sample IDs: 2312860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.2	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A111094

Included Lab Sample IDs: 2312860

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	99.6	101	P/P	90 - 110
Magnesium	101	103	P/P	90 - 110
Strontium	101	100	P/P	90 - 110
Tin	97.5	97.3	P/P	90 - 110
Vanadium	97.1	97.4	P/P	90 - 110
Zinc	101	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111122

Included Lab Sample IDs: 2312859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.9	103	P/P	90 - 110
Antimony	97.0	98.7	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Beryllium	97.4	102	P/P	90 - 110
Cadmium	98.6	99.7	P/P	90 - 110
Chromium	97.3	99.2	P/P	90 - 110
Cobalt	103	102	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	96.5	95.9	P/P	90 - 110
Manganese	98.9	99.4	P/P	90 - 110
Molybdenum	99.7	99.8	P/P	90 - 110
Nickel	102	101	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Silver	96.6	96.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A111123

Included Lab Sample IDs: 2312859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.8	99.2	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	99.7	99.7	P/P	90 - 110
Strontium	94.5	94.8	P/P	90 - 110
Tin	94.6	95.6	P/P	90 - 110
Vanadium	95.0	94.8	P/P	90 - 110
Zinc	96.8	96.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A111189

Included Lab Sample IDs: 2312858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.0	67.3	P/P	50 - 150
2,4,5-T	85.3	75.0	P/P	50 - 150
Acetaminophen	103	122	P/P	60 - 160
Acetamiprid	95.2	99.8	P/P	50 - 150
Afidopyropen	69.8	80.5	P/P	50 - 150
Bentazon	60.5	74.8	P/P	50 - 160
Benzovindiflupyr	104	98.3	P/P	50 - 160
Carbamazepine	82.2	74.2	P/P	60 - 150
Clothianidin	97.0	118	P/P	60 - 150
Dinotefuran	113	110	P/P	50 - 150
Diuron	69.3	74.7	P/P	60 - 160
Fenuron	93.0	103	P/P	60 - 150
Fluridone	78.2	81.7	P/P	60 - 160
Hydrocodone	103	107	P/P	60 - 150
Ibuprofen	63.7	144	P/P	50 - 160
Imazapyr	120	108	P/P	50 - 150
Imidacloprid	91.8	104	P/P	60 - 150
Linuron	130	110	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A111189

Included Lab Sample IDs: 2312858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Mandestrobin	97.4	67.8	P/P	50 - 150
MCCP	83.5	78.3	P/P	50 - 150
Naproxen	83.2	125	P/P	50 - 160
Primidone	91.7	110	P/P	60 - 150
Pyraclostrobin	118	94.1	P/P	60 - 150
Silvex	98.7	83.5	P/P	50 - 150
Thiamethoxam	107	110	P/P	50 - 150
Tolfenpyrad	118	94.7	P/P	60 - 150
Triclopyr	75.0	68.8	P/P	50 - 150

* 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 200.7 Rev. 4.4	Calcium	104	103	104				1.01
	Calcium	105						2.92
	Iron	109	106	99.2	102			1.99
	Iron	106	97.8	101				3.07
	Magnesium	111	106	102	105			2.21
	Magnesium	105						2.54
	Strontium	109	108	103	105			1.85
	Strontium	103						2.43
	Tin	106	106	102	103			0.843
	Tin	104	71.8	81.7				12.9
	Vanadium	98.2	100	95.5	97.6			2.12
	Vanadium	95.7	95.7	95.4				0.333
	Zinc	106	108	103	105			2.11
	Zinc	102	93.2	94.8				1.72
EPA 200.8 Rev. 5.4	Aluminum	101	99.5	101				1.05
	Aluminum	98.2	103	107				3.50
	Antimony	99.9	98.6	98.1	102			0.482
	Antimony	98.2	98.6	100				1.69
	Arsenic	99.4	98.9	99.0	103			0.0390
	Arsenic	96.6	109	110				1.44
	Beryllium	97.3	97.2	98.6	101			1.19
	Beryllium	92.4	106	106				0.197
	Cadmium	99.8	99.6	102	101			2.02
	Cadmium	97.0	89.8	94.2				4.82
	Chromium	97.6	98.7	102	102			3.64
	Chromium	95.1	97.5	98.2				0.735
	Cobalt	98.5	99.8	100	102			0.585
	Cobalt	96.7	112	113				1.20
	Copper	97.2	97.9	99.3	102			1.42
	Copper	93.7	102	103				0.935
	Lead	97.1	97.0	98.1	99.0			1.08
	Lead	95.0	101	102				1.61
	Manganese	98.6	100	105	105			2.23
	Manganese	96.2	95.1	96.2				0.861
	Molybdenum	98.1	98.3	99.2	101			0.924
	Molybdenum	96.8	110	113				1.95
	Nickel	98.8	99.6	101	103			1.25
	Nickel	95.7	108	111				2.32
	Selenium	99.8	97.2	98.5	103			1.32
	Selenium	97.0	96.2	99.2				3.11
	Silver	98.4	96.4	98.3	99.1			1.94
	Silver	97.8	86.1	88.2				2.46
EPA 8321B	2,4-D	56.3	69.0	59.8				10.1
	2,4,5-T	44.5	58.5	65.2				10.9
	Acesulfame K	94.1	82.9	83.1				0.268
	Acetaminophen	82.9	103	105				1.44
	Acetamiprid	73.6	98.6	87.1				12.4
	Afidopyropen	51.3	57.9	55.4				4.29
	AMPA	95.4	95.4	102				6.92
	Bentazon	85.2	92.4	103				6.68
	Benzovindiflupyr	72.0	76.1	78.1				2.67
	Carbamazepine	67.7	80.4	77.8				3.30
	Clothianidin	96.1	128	126				1.75
	Dinotefuran	93.7	124	119				3.15

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS	MS		
EPA 8321B	Diuron	54.3	52.2	45.3		9.63
	Endothall	93.2	102	106		3.00
	Fenuron	106	132	152		11.5
	Fluridone	69.7	65.8	68.2		3.71
	Glufosinate	101	84.3	93.3		10.1
	Glyphosate	95.1	84.4	88.7		5.02
	Hydrocodone	92.4	103	112		8.85
	Ibuprofen	56.8	51.3	56.8		10.2
	Imazapyr	88.3	130	111		10.7
	Imidacloprid	80.1	212	203		4.20
	Linuron	70.3	84.9	79.7		6.27
	Mandestrobin	53.1	64.3	60.9		5.53
	MCPP	59.3	86.8	79.1		9.29
	Naproxen	67.5	74.6	74.8		0.262
	Primidone	76.6	124	92.4		28.8
	Pyraclostrobin	64.8	80.0	80.3		0.361
	Silvex	37.0	59.9	58.3		2.71
	Sucralose	86.4	80.9	95.0		15.9
	Thiamethoxam	93.0	174	175		0.767
	Tolfenpyrad	37.9	55.2	46.1		17.8
	Triclopyr	43.7	60.0	53.8		10.9

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2312859, 2312860
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2312859, 2312860
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2312858

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	03/16/2022	03/17/2022 10:40	Megan Whitefoot	03/22/2022 18:12	Josef B Mick	2312860
	03/16/2022	03/23/2022 10:20	Megan Whitefoot	03/24/2022 00:27	Josef B Mick	2312859
	03/16/2022	03/23/2022 10:20	Megan Whitefoot	03/24/2022 00:35	Josef B Mick	2312859
EPA 200.8 Rev. 5.4	03/16/2022	03/17/2022 10:40	Megan Whitefoot	03/18/2022 15:15	Alexander Thompson	2312860
	03/16/2022	03/22/2022 10:52	Megan Whitefoot	03/22/2022 22:13	Emily M Philpot	2312860
	03/16/2022	03/23/2022 10:20	Megan Whitefoot	03/23/2022 19:08	Alexander Thompson	2312859
EPA 8321B	03/16/2022	03/18/2022 12:00	June Rhew	03/26/2022 16:45	Juyoung Kim	2312858
	03/16/2022	03/21/2022 12:00	Manjita Shrestha	03/21/2022 15:17	Manjita Shrestha	2312858
	03/16/2022	03/21/2022 12:00	Manjita Shrestha	03/21/2022 17:04	Manjita Shrestha	2312858