

Chemical Analysis Report

TLH-ROC-2022-06-09-01

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

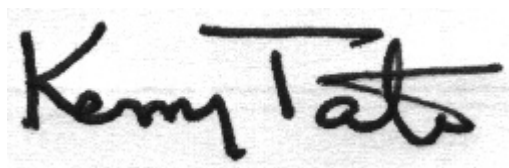
Event Description: **Run 5**
Request ID: **RQ-2022-05-02-71**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Tallahassee, FL 32399
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 21-JUN-2022 09:31

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Welaunee Creek

Collection Date/Time: 06/09/2022 11:45

Field ID: G1TLHR0149

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2333599	EPA 8321B	2,4-D	0.0020	U	ug/L	P414950	
		2,4,5-T	0.0040	U	ug/L	P414950	
		AMPA	0.10	U	ug/L	P414936	
		Acetaminophen	0.0080	U	ug/L	P414950	
		Acetamiprid	0.0020	U	ug/L	P414950	
		Endothall	0.25	U	ug/L	P414936	
		Glufosinate	0.10	U	ug/L	P414936	
		Glyphosate	0.10	U	ug/L	P414936	
		Afidopyropen	0.0020	U	ug/L	P414950	
		Bentazon	8.0E-04	U	ug/L	P414950	
		Sucralose	0.097		ug/L	P414936	
		Benzovindiflupyr	0.0020	U	ug/L	P414950	
		Carbamazepine	8.0E-04	U	ug/L	P414950	
		Clothianidin	0.0020	U	ug/L	P414950	
		Dinotefuran	0.0020	U	ug/L	P414950	
		Diuron	0.0020	U	ug/L	P414950	
		Fenuron	0.032	U	ug/L	P414950	
		Fluridone	8.0E-04	U	ug/L	P414950	
		Imazapyr	0.0040	U	ug/L	P414950	
		Hydrocodone	0.0020	U	ug/L	P414950	
		Ibuprofen	0.080	U	ug/L	P414950	
		Imidacloprid	0.0041	I	ug/L	P414950	
		Linuron	0.0040	U	ug/L	P414950	
		Mandestrobin	0.0020	U	ug/L	P414950	
		MCPP	0.0040	U	ug/L	P414950	
		Naproxen	0.0080	U	ug/L	P414950	
		Primidone	0.0040	U	ug/L	P414950	
		Pyraclostrobin	0.0020	U	ug/L	P414950	
		Silvex	0.0040	U	ug/L	P414950	
		Thiamethoxam	0.0020	U	ug/L	P414950	
		Tolfenpyrad	0.0020	U	ug/L	P414950	
		Triclopyr	0.0040	U	ug/L	P414950	
2333600	EPA 200.7 Rev. 4.4	Calcium	4.10		mg/L	P415073	
		Iron	640		ug/L	P415073	
		Magnesium	2.14		mg/L	P415073	
		Potassium	1.7		mg/L	P415073	
		Sodium	3.5		mg/L	P415073	
		Strontium	9.5		ug/L	P415073	
		Tin	3.0	U	ug/L	P415073	
		Titanium	2.1	I	ug/L	P415073	
		Vanadium	2.0	U	ug/L	P415073	
		Zinc	5.0	U	ug/L	P415073	
	EPA 200.8 Rev. 5.4	Aluminum	98		ug/L	P415073	
		Antimony	0.050	U	ug/L	P415073	

Field ID: G1TLHR0149

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2333600	EPA 200.8 Rev. 5.4	Arsenic	0.28		ug/L	P415073	
		Barium	12.2		ug/L	P415073	
		Beryllium	0.010	U	ug/L	P415073	
		Boron**	15.8		ug/L	P415073	
		Cadmium	0.020	U	ug/L	P415073	
		Chromium	0.40	U	ug/L	P415073	
		Cobalt	0.158		ug/L	P415073	
		Copper	0.40	U	ug/L	P415073	
		Lead	0.20	U	ug/L	P415073	
		Manganese	71.4		ug/L	P415073	
		Molybdenum	0.15	U	ug/L	P415073	
		Nickel	0.50	U	ug/L	P415073	
		Selenium	0.20	U	ug/L	P415073	
		Silver	0.010	U	ug/L	P415073	
		Thallium	0.10	U	ug/L	P415073	
	SM 2340 B-2011	Hardness	19.1		mg/L	P415073	

Ref. Method and Comment:

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P415073

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	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: P415073

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	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
Thallium	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P414936

Component	Result	Code	Units
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: P414950

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P414950

Component	Result	Code	Units
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	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.080	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	0.0040	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
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P415073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	101		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	103		P	85 - 115
Sodium	102		P	85 - 115
Strontium	98.8		P	85 - 115
Tin	98.0		P	85 - 115
Titanium	99.0		P	85 - 115
Vanadium	92.6		P	85 - 115
Zinc	97.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P415073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.4		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	99.0		P	85 - 115
Barium	103		P	85 - 115
Beryllium	93.4		P	85 - 115
Boron	99.3		P	85 - 115
Cadmium	97.4		P	85 - 115
Chromium	97.1		P	85 - 115
Cobalt	104		P	85 - 115
Copper	97.6		P	85 - 115
Lead	100		P	85 - 115
Manganese	97.7		P	85 - 115
Molybdenum	99.0		P	85 - 115
Nickel	99.1		P	85 - 115
Selenium	98.0		P	85 - 115
Silver	105		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P414936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	99.7		P	40 - 150
Endothall	96.9		P	40 - 150
Glufosinate	94.7		P	40 - 150
Glyphosate	99.2		P	40 - 150
Sucralose	94.6		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P414950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.3		P	40 - 150
2,4,5-T	82.6		P	40 - 150
Acetaminophen	81.6		P	30 - 150
Acetamiprid	69.6		P	40 - 150
Afidopyropen	59.1		P	30 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P414950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bentazon	93.8		P	30 - 150
Benzovindiflupyr	52.5		P	40 - 150
Carbamazepine	66.1		P	40 - 150
Clothianidin	76.6		P	40 - 150
Dinotefuran	78.4		P	40 - 150
Diuron	66.8		P	40 - 150
Fenuron	72.1		P	40 - 150
Fluridone	75.0		P	40 - 150
Hydrocodone	75.3		P	40 - 150
Ibuprofen	84.2		P	40 - 150
Imazapyr	84.7		P	40 - 150
Imidacloprid	70.8		P	40 - 150
Linuron	61.3		P	40 - 150
Mandestrobin	53.5		P	40 - 150
MCPP	91.7		P	40 - 150
Naproxen	78.9		P	40 - 150
Primidone	81.6		P	40 - 150
Pyraclostrobin	50.9		P	40 - 150
Silvex	75.8		P	40 - 150
Thiamethoxam	73.9		P	40 - 150
Tolfenpyrad	40.5		P	30 - 150
Triclopyr	84.0		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P415073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333337	Calcium	102		P	80 - 120
2333337	Iron	102		P	80 - 120
2333337	Magnesium	102		P	80 - 120
2333337	Potassium	108		P	80 - 120
2333337	Sodium	101		P	80 - 120
2333337	Strontium	99.8		P	80 - 120
2333337	Tin	99.1		P	80 - 120
2333337	Titanium	103		P	80 - 120
2333337	Vanadium	94.9		P	80 - 120
2333337	Zinc	100		P	80 - 120
2333846	Calcium	100	103	P/P	80 - 120
2333846	Iron	99.7	100	P/P	80 - 120
2333846	Magnesium	100	101	P/P	80 - 120
2333846	Potassium	110	111	P/P	80 - 120
2333846	Sodium	103	104	P/P	80 - 120
2333846	Strontium	98.6	98.4	P/P	80 - 120
2333846	Tin	98.5	97.5	P/P	80 - 120
2333846	Titanium	99.5	100	P/P	80 - 120
2333846	Vanadium	92.2	93.0	P/P	80 - 120
2333846	Zinc	95.4	96.3	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P415073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333337	Aluminum	102		P	80 - 120
2333337	Antimony	102		P	80 - 120
2333337	Arsenic	99.3		P	80 - 120
2333337	Barium	105		P	80 - 120
2333337	Beryllium	92.7		P	80 - 120
2333337	Boron	103		P	80 - 120
2333337	Cadmium	102		P	80 - 120
2333337	Chromium	98.8		P	80 - 120
2333337	Cobalt	105		P	80 - 120
2333337	Copper	99.5		P	80 - 120
2333337	Lead	101		P	80 - 120
2333337	Manganese	101		P	80 - 120
2333337	Molybdenum	100		P	80 - 120
2333337	Nickel	98.9		P	80 - 120
2333337	Selenium	95.2		P	80 - 120
2333337	Silver	106		P	80 - 120
2333337	Thallium	103		P	80 - 120
2333846	Aluminum	99.5	99.4	P/P	80 - 120
2333846	Antimony	100	100	P/P	80 - 120
2333846	Arsenic	99.4	98.1	P/P	80 - 120
2333846	Barium	104	103	P/P	80 - 120
2333846	Beryllium	92.4	93.3	P/P	80 - 120
2333846	Boron	102	102	P/P	80 - 120
2333846	Cadmium	97.6	97.7	P/P	80 - 120
2333846	Chromium	95.5	97.0	P/P	80 - 120
2333846	Cobalt	102	102	P/P	80 - 120
2333846	Copper	96.7	96.2	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P415073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333846	Lead	100	101	P/P	80 - 120
2333846	Manganese	97.1	96.0	P/P	80 - 120
2333846	Molybdenum	98.8	98.4	P/P	80 - 120
2333846	Nickel	96.6	96.4	P/P	80 - 120
2333846	Selenium	97.7	95.1	P/P	80 - 120
2333846	Silver	104	103	P/P	80 - 120
2333846	Thallium	102	103	P/P	80 - 120

Reference Method: EPA 8321B

Batch ID: P414936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333217	AMPA	113	109	P/P	40 - 150
2333217	Endothall	98.4	95.6	P/P	40 - 150
2333217	Glufosinate	100	108	P/P	40 - 150
2333217	Glyphosate	105	101	P/P	40 - 150
2333217	Sucralose	97.5	96.5	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P414950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333123	2,4-D	121	121	P/P	40 - 150
2333123	2,4,5-T	109	112	P/P	40 - 150
2333123	Acetaminophen	121	123	P/P	30 - 150
2333123	Acetamiprid	75.6	74.9	P/P	40 - 150
2333123	Afidopyropen	63.1	61.5	P/P	30 - 150
2333123	Benzovindiflupyr	57.5	61.6	P/P	40 - 150
2333123	Carbamazepine	91.4	93.5	P/P	40 - 150
2333123	Clothianidin	104	100	P/P	40 - 150
2333123	Dinotefuran	126	124	P/P	40 - 150
2333123	Diuron	80.8	85.3	P/P	40 - 150
2333123	Fenuron	76.9	78.4	P/P	40 - 150
2333123	Fluridone	87.4	85.6	P/P	40 - 150
2333123	Hydrocodone	93.2	98.2	P/P	40 - 150
2333123	Ibuprofen	96.3	92.1	P/P	40 - 150
2333123	Imidacloprid	126	124	P/P	40 - 150
2333123	Linuron	74.7	71.0	P/P	40 - 150
2333123	Mandestrobin	61.1	62.6	P/P	40 - 150
2333123	MCPP	131	133	P/P	40 - 150
2333123	Naproxen	113	94.3	P/P	40 - 150
2333123	Primidone	109	106	P/P	40 - 150
2333123	Pyraclostrobin	57.0	57.9	P/P	40 - 150
2333123	Silvex	109	104	P/P	40 - 150
2333123	Thiamethoxam	126	126	P/P	40 - 150
2333123	Tolfenpyrad	45.8	44.6	P/P	30 - 150
2333123	Triclopyr	123	126	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P415073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333846	Calcium	2.16	Spike	P	0 - 20
2333846	Iron	0.748	Spike	P	0 - 20
2333846	Magnesium	0.757	Spike	P	0 - 20
2333846	Potassium	0.691	Spike	P	0 - 20
2333846	Sodium	0.393	Spike	P	0 - 20
2333846	Strontium	0.182	Spike	P	0 - 20
2333846	Tin	0.951	Spike	P	0 - 20
2333846	Titanium	0.820	Spike	P	0 - 20
2333846	Vanadium	0.867	Spike	P	0 - 20
2333846	Zinc	0.953	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P415073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333846	Aluminum	0.0722	Spike	P	0 - 20
2333846	Antimony	0.0323	Spike	P	0 - 20
2333846	Arsenic	1.28	Spike	P	0 - 20
2333846	Barium	0.214	Spike	P	0 - 20
2333846	Beryllium	0.960	Spike	P	0 - 20
2333846	Boron	0.213	Spike	P	0 - 20
2333846	Cadmium	0.0798	Spike	P	0 - 20
2333846	Chromium	1.53	Spike	P	0 - 20
2333846	Cobalt	0.830	Spike	P	0 - 20
2333846	Copper	0.598	Spike	P	0 - 20
2333846	Lead	0.308	Spike	P	0 - 20
2333846	Manganese	0.938	Spike	P	0 - 20
2333846	Molybdenum	0.417	Spike	P	0 - 20
2333846	Nickel	0.216	Spike	P	0 - 20
2333846	Selenium	2.74	Spike	P	0 - 20
2333846	Silver	1.37	Spike	P	0 - 20
2333846	Thallium	0.661	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P414936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333217	AMPA	3.60	Spike	P	0 - 30
2333217	Endothall	2.90	Spike	P	0 - 30
2333217	Glufosinate	7.30	Spike	P	0 - 30
2333217	Glyphosate	3.56	Spike	P	0 - 30
2333217	Sucralose	1.00	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P414950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333123	2,4-D	0.143	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P414950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333123	2,4,5-T	2.94	Spike	P	0 - 30
2333123	Acetaminophen	1.80	Spike	P	0 - 30
2333123	Acetamiprid	0.910	Spike	P	0 - 30
2333123	Afidopyropen	2.55	Spike	P	0 - 30
2333123	Bentazon	2.42	Spike	P	0 - 30
2333123	Benzovindiflupyr	6.97	Spike	P	0 - 30
2333123	Carbamazepine	1.86	Spike	P	0 - 30
2333123	Clothianidin	2.70	Spike	P	0 - 30
2333123	Dinotefuran	1.81	Spike	P	0 - 30
2333123	Diuron	4.85	Spike	P	0 - 30
2333123	Fenuron	1.95	Spike	P	0 - 30
2333123	Fluridone	1.68	Spike	P	0 - 30
2333123	Hydrocodone	5.26	Spike	P	0 - 30
2333123	Ibuprofen	4.41	Spike	P	0 - 30
2333123	Imazapyr	7.54	Spike	P	0 - 30
2333123	Imidacloprid	0.924	Spike	P	0 - 30
2333123	Linuron	5.09	Spike	P	0 - 30
2333123	Mandestrobin	2.36	Spike	P	0 - 30
2333123	MCPP	1.41	Spike	P	0 - 30
2333123	Naproxen	18.1	Spike	P	0 - 30
2333123	Primidone	3.41	Spike	P	0 - 30
2333123	Pyraclostrobin	1.57	Spike	P	0 - 30
2333123	Silvex	5.21	Spike	P	0 - 30
2333123	Thiamethoxam	0.388	Spike	P	0 - 30
2333123	Tolfenpyrad	2.48	Spike	P	0 - 30
2333123	Triclopyr	1.94	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2333599

Field Sample ID: G1TLHR0149

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.1	P	30 - 160
EPA 8321B	Diuron-d6	72.0	P	30 - 160
EPA 8321B	Endothall-d6	95.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	92.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	83.1	P	30 - 160
EPA 8321B	Primidone-d5	93.8	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A112787

Included Lab Sample IDs: 2333600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.7	98.2	P/P	90 - 110
Antimony	98.4	97.8	P/P	90 - 110
Arsenic	97.5	97.4	P/P	90 - 110
Barium	98.8	97.9	P/P	90 - 110
Beryllium	95.2	95.0	P/P	90 - 110
Boron	98.0	99.2	P/P	90 - 110
Cadmium	98.9	97.3	P/P	90 - 110
Chromium	96.8	97.0	P/P	90 - 110
Cobalt	101	101	P/P	90 - 110
Copper	95.8	95.8	P/P	90 - 110
Lead	98.4	97.8	P/P	90 - 110
Manganese	98.2	97.7	P/P	90 - 110
Molybdenum	97.3	97.2	P/P	90 - 110
Nickel	96.9	96.6	P/P	90 - 110
Selenium	94.8	96.3	P/P	90 - 110
Silver	103	104	P/P	90 - 110
Thallium	96.4	95.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A112791

Included Lab Sample IDs: 2333599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	103	P/P	50 - 150
2,4,5-T	106	112	P/P	50 - 150
Acetaminophen	107	107	P/P	60 - 160
Acetamiprid	89.1	89.0	P/P	50 - 150
Afidopyropen	84.3	79.0	P/P	50 - 150
Bentazon	108	108	P/P	50 - 160
Benzovindiflupyr	80.7	78.7	P/P	50 - 150
Carbamazepine	86.7	87.2	P/P	60 - 150
Clothianidin	96.8	100	P/P	60 - 150
Dinotefuran	95.1	93.1	P/P	50 - 150
Diuron	90.2	86.6	P/P	60 - 160
Fenuron	86.1	86.3	P/P	60 - 150
Fluridone	97.2	101	P/P	60 - 160
Hydrocodone	94.4	93.6	P/P	60 - 150
Ibuprofen	99.0	98.7	P/P	50 - 160
Imazapyr	98.7	98.4	P/P	50 - 150
Imidacloprid	90.7	88.4	P/P	60 - 150
Linuron	74.3	77.6	P/P	60 - 150
Mandestrobin	81.2	81.3	P/P	50 - 150
MCPP	112	109	P/P	50 - 150
Naproxen	111	132	P/P	50 - 160
Primidone	96.4	102	P/P	60 - 150
Pyraclostrobin	78.0	78.0	P/P	60 - 150
Silvex	110	106	P/P	50 - 150
Thiamethoxam	91.7	90.9	P/P	50 - 150
Tolfenpyrad	85.6	85.1	P/P	60 - 150
Triclopyr	101	106	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A112806

Included Lab Sample IDs: 2333600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.6	96.9	P/P	90 - 110
Iron	99.6	96.7	P/P	90 - 110
Magnesium	98.6	96.5	P/P	90 - 110
Potassium	103	99.0	P/P	90 - 110
Sodium	100	97.7	P/P	90 - 110
Strontium	98.3	96.2	P/P	90 - 110
Tin	97.5	96.7	P/P	90 - 110
Titanium	96.1	97.0	P/P	90 - 110
Vanadium	97.9	96.8	P/P	90 - 110
Zinc	95.8	96.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A112815

Included Lab Sample IDs: 2333599

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

Reference Method: EPA 8321B

Run ID: A112816

Included Lab Sample IDs: 2333599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	104	102	P/P	60 - 160
Endothall	110	113	P/P	60 - 160
Glufosinate	104	103	P/P	60 - 160
Glyphosate	105	97.9	P/P	60 - 160

* 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 SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Calcium	103	100	102	103		2.16
	Iron	101	102	99.7	100		0.748
	Magnesium	102	102	100	101		0.757
	Potassium	103	108	110	111		0.691
	Sodium	102	101	103	104		0.393
	Strontium	98.8	99.8	98.6	98.4		0.182
	Tin	98.0	99.1	98.5	97.5		0.951
	Titanium	99.0	103	99.5	100		0.820
	Vanadium	92.6	94.9	92.2	93.0		0.867
	Zinc	97.7	100	95.4	96.3		0.953
EPA 200.8 Rev. 5.4	Aluminum	98.4	99.5	99.4	102		0.0722
	Antimony	100	100	100	102		0.0323
	Arsenic	99.0	99.4	98.1	99.3		1.28
	Barium	103	104	103	105		0.214
	Beryllium	93.4	92.4	93.3	92.7		0.960
	Boron	99.3	102	102	103		0.213
	Cadmium	97.4	97.6	97.7	102		0.0798
	Chromium	97.1	95.5	97.0	98.8		1.53
	Cobalt	104	102	102	105		0.830
	Copper	97.6	96.7	96.2	99.5		0.598
	Lead	100	100	101	101		0.308
	Manganese	97.7	97.1	96.0	101		0.938
	Molybdenum	99.0	98.8	98.4	100		0.417
	Nickel	99.1	96.6	96.4	98.9		0.216
	Selenium	98.0	97.7	95.1	95.2		2.74
	Silver	105	104	103	106		1.37
	Thallium	100	102	103	103		0.661
	2,4-D	88.3	121	121			0.143
	2,4,5-T	82.6	112	109			2.94
	Acetaminophen	81.6	121	123			1.80
EPA 8321B	Acetamiprid	69.6	75.6	74.9			0.910
	Afidopyropen	59.1	63.1	61.5			2.55
	AMPA	99.7	113	109			3.60
	Bentazon	93.8					2.42
	Benzovindiflupyr	52.5	61.6	57.5			6.97
	Carbamazepine	66.1	91.4	93.5			1.86
	Clothianidin	76.6	104	100			2.70
	Dinotefuran	78.4	126	124			1.81
	Diuron	66.8	80.8	85.3			4.85
	Endothall	96.9	98.4	95.6			2.90
	Fenuron	72.1	76.9	78.4			1.95
	Fluridone	75.0	87.4	85.6			1.68
	Glufosinate	94.7	100	108			7.30
	Glyphosate	99.2	105	101			3.56
	Hydrocodone	75.3	93.2	98.2			5.26
	Ibuprofen	84.2	92.1	96.3			4.41
	Imazapyr	84.7					7.54
	Imidacloprid	70.8	126	124			0.924
	Linuron	61.3	74.7	71.0			5.09
	Mandestrobin	53.5	62.6	61.1			2.36
	MCPP	91.7	133	131			1.41
	Naproxen	78.9	94.3	113			18.1
	Primidone	81.6	109	106			3.41
	Pyraclostrobin	50.9	57.9	57.0			1.57

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Silvex	75.8	104	109		5.21
	Sucralose	94.6	97.5	96.5		1.00
	Thiamethoxam	73.9	126	126		0.388
	Tolfenpyrad	40.5	44.6	45.8		2.48
	Triclopyr	84.0	126	123		1.94

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	2333600
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2333600
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2333599
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2333600

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	06/09/2022	06/12/2022 10:44	Emily M Philpot	06/13/2022 17:07	McKinley C Carter	2333600
EPA 200.8 Rev. 5.4	06/09/2022	06/12/2022 10:44	Emily M Philpot	06/13/2022 19:01	Emily M Philpot	2333600
EPA 8321B	06/09/2022	06/10/2022 13:00	Hoor Shaik	06/11/2022 21:00	Juyoung Kim	2333599
	06/09/2022	06/13/2022 12:00	Umesh Chiluwal	06/13/2022 21:13	Umesh Chiluwal	2333599
	06/09/2022	06/13/2022 12:00	Umesh Chiluwal	06/14/2022 06:53	Umesh Chiluwal	2333599
SM 2340 B-2011	06/09/2022			06/13/2022 17:07	McKinley C Carter	2333600