

Chemical Analysis Report

TLH-ROC-2022-07-19-01

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-2022-01-03-55**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 05-AUG-2022 08:58

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: Double Branch Upstream SR270

Collection Date/Time: 07/19/2022 10:10

Field ID: G1TLHR0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342436	EPA 8321B	2,4-D	0.0020	U	ug/L	P416992	
		Acesulfame K	0.10	U	ug/L	P416713	
		2,4,5-T	0.0040	U	ug/L	P416992	
		AMPA	0.10	U	ug/L	P416713	
		Acetaminophen	0.0080	U	ug/L	P416992	
		Acetamiprid	0.0020	U	ug/L	P416992	
		Endothall	0.25	U	ug/L	P416713	MS
		Glufosinate	0.10	U	ug/L	P416713	
		Glyphosate	0.10	U	ug/L	P416713	
		Afidopyropen	0.0020	U	ug/L	P416992	
		Bentazon	8.0E-04	U	ug/L	P416992	
		Sucralose	0.011	I	ug/L	P416713	
		Benzovindiflupyr	0.0020	U	ug/L	P416992	
		Carbamazepine	8.0E-04	U	ug/L	P416992	
		Clothianidin	0.0020	U	ug/L	P416992	
		Dinotefuran	0.0020	U	ug/L	P416992	
		Diuron	0.0020	U	ug/L	P416992	
		Fenuron	0.032	U	ug/L	P416992	
		Fluridone	8.0E-04	U	ug/L	P416992	
		Imazapyr	0.0040	U	ug/L	P416992	
		Hydrocodone	0.0020	U	ug/L	P416992	
		Ibuprofen	0.080	U	ug/L	P416992	
		Imidacloprid	0.0020	U	ug/L	P416992	
		Linuron	0.0040	U	ug/L	P416992	
		Mandestrobin	0.0020	U	ug/L	P416992	
		MCPP	0.0040	U	ug/L	P416992	
		Naproxen	0.0080	U	ug/L	P416992	
		Primidone	0.0040	U	ug/L	P416992	
		Pyraclostrobin	0.0020	U	ug/L	P416992	
		Silvex	0.0040	U	ug/L	P416992	
		Thiamethoxam	0.0020	U	ug/L	P416992	
		Tolfenpyrad	0.0020	U	ug/L	P416992	
		Triclopyr	0.0040	U	ug/L	P416992	
2342437	EPA 200.7 Rev. 4.4	Calcium	5.26		mg/L	P416943	
		Iron	1.37E+03		ug/L	P416943	
		Magnesium	1.07		mg/L	P416943	
		Potassium	0.37	I	mg/L	P416943	
		Sodium	2.6		mg/L	P416943	
		Strontium	12.5		ug/L	P416943	
		Tin	3.0	U	ug/L	P416943	
		Titanium	2.8	I	ug/L	P416943	
		Vanadium	2.0	U	ug/L	P416943	
		Zinc	5.0	U	ug/L	P416943	
	EPA 200.8 Rev. 5.4	Aluminum	413		ug/L	P416943	

Field ID: G1TLHR0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342437	EPA 200.8 Rev. 5.4	Antimony	0.051	I	ug/L	P416943	
		Arsenic	0.86		ug/L	P416943	
		Barium	14.9		ug/L	P416943	
		Beryllium	0.022	I	ug/L	P416943	
		Boron	12.5		ug/L	P416943	
		Cadmium	0.020	U	ug/L	P416943	
		Chromium	0.82	I	ug/L	P416943	
		Cobalt	0.182		ug/L	P416943	
		Copper	0.56	I	ug/L	P416943	
		Lead	0.32	I	ug/L	P416943	
		Manganese	107		ug/L	P416943	
		Molybdenum	0.15	U	ug/L	P416943	
		Nickel	0.50	U	ug/L	P416943	
		Selenium	0.22	I	ug/L	P416943	
		Silver	0.010	U	ug/L	P416943	
		Thallium	0.10	U	ug/L	P416943	
	SM 2340 B-2011	Hardness	17.5		mg/L	P416943	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P416943

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: P416943

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: P416713

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: P416992

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P416992

Component	Result	Code	Units
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	0.032	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: P416943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	104		P	85 - 115
Magnesium	99.5		P	85 - 115
Potassium	101		P	85 - 115
Sodium	105		P	85 - 115
Strontium	105		P	85 - 115
Tin	99.6		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	101		P	85 - 115
Zinc	99.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P416943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.7		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	98.0		P	85 - 115
Barium	101		P	85 - 115
Beryllium	89.2		P	85 - 115
Boron	98.1		P	85 - 115
Cadmium	97.3		P	85 - 115
Chromium	99.2		P	85 - 115
Cobalt	97.2		P	85 - 115
Copper	95.7		P	85 - 115
Lead	93.7		P	85 - 115
Manganese	101		P	85 - 115
Molybdenum	95.4		P	85 - 115
Nickel	98.5		P	85 - 115
Selenium	94.5		P	85 - 115
Silver	96.6		P	85 - 115
Thallium	95.0		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P416713

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	80.2		P	40 - 150
AMPA	112		P	40 - 150
Endothall	102		P	40 - 150
Glufosinate	128		P	40 - 150
Glyphosate	103		P	40 - 150
Sucralose	102		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P416992

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	72.9		P	40 - 150
2,4,5-T	64.6		P	40 - 150
Acetaminophen	85.8		P	30 - 150
Acetamiprid	63.4		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P416992

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	66.2		P	30 - 150
Bentazon	104		P	30 - 150
Benzovindiflupyr	93.8		P	40 - 150
Carbamazepine	92.5		P	40 - 150
Clothianidin	101		P	40 - 150
Dinotefuran	90.9		P	40 - 150
Diuron	80.7		P	40 - 150
Fenuron	93.0		P	40 - 150
Fluridone	100		P	40 - 150
Hydrocodone	90.6		P	40 - 150
Ibuprofen	89.2		P	40 - 150
Imazapyr	89.8		P	40 - 150
Imidacloprid	92.2		P	40 - 150
Linuron	87.9		P	40 - 150
Mandestrobin	90.7		P	40 - 150
MCPP	87.6		P	40 - 150
Naproxen	66.2		P	40 - 150
Primidone	79.7		P	40 - 150
Pyraclostrobin	77.1		P	40 - 150
Silvex	55.3		P	40 - 150
Thiamethoxam	90.4		P	40 - 150
Tolfenpyrad	44.8		P	30 - 150
Triclopyr	66.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P416943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342516	Calcium	103		P	80 - 120
2342516	Iron	103	104	P/P	80 - 120
2342516	Magnesium	99.4		P	80 - 120
2342516	Potassium	103	105	P/P	80 - 120
2342516	Sodium	107	111	P/P	80 - 120
2342516	Strontium	104	106	P/P	80 - 120
2342516	Tin	94.4	100	P/P	80 - 120
2342516	Titanium	99.8	103	P/P	80 - 120
2342516	Vanadium	99.3	103	P/P	80 - 120
2342516	Zinc	95.5	98.9	P/P	80 - 120
2342680	Calcium	96.7		P	80 - 120
2342680	Iron	105		P	80 - 120
2342680	Magnesium	94.9		P	80 - 120
2342680	Potassium	105		P	80 - 120
2342680	Sodium	98.6		P	80 - 120
2342680	Strontium	108		P	80 - 120
2342680	Tin	98.9		P	80 - 120
2342680	Titanium	104		P	80 - 120
2342680	Vanadium	105		P	80 - 120
2342680	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P416943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342516	Aluminum	97.8	99.2	P/P	80 - 120
2342516	Antimony	102	105	P/P	80 - 120
2342516	Arsenic	99.0	102	P/P	80 - 120
2342516	Barium	101	104	P/P	80 - 120
2342516	Beryllium	90.4	95.1	P/P	80 - 120
2342516	Boron	99.0	101	P/P	80 - 120
2342516	Cadmium	96.6	101	P/P	80 - 120
2342516	Chromium	101	103	P/P	80 - 120
2342516	Cobalt	97.3	99.4	P/P	80 - 120
2342516	Copper	95.3	98.3	P/P	80 - 120
2342516	Lead	92.8	95.0	P/P	80 - 120
2342516	Manganese	103	105	P/P	80 - 120
2342516	Molybdenum	97.1	100	P/P	80 - 120
2342516	Nickel	98.9	100	P/P	80 - 120
2342516	Selenium	93.5	97.9	P/P	80 - 120
2342516	Silver	94.8	98.2	P/P	80 - 120
2342516	Thallium	96.7	99.2	P/P	80 - 120
2342680	Aluminum	102		P	80 - 120
2342680	Antimony	105		P	80 - 120
2342680	Arsenic	103		P	80 - 120
2342680	Barium	106		P	80 - 120
2342680	Beryllium	94.0		P	80 - 120
2342680	Boron	106		P	80 - 120
2342680	Cadmium	103		P	80 - 120
2342680	Chromium	104		P	80 - 120
2342680	Cobalt	101		P	80 - 120
2342680	Copper	101		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P416943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342680	Lead	97.4		P	80 - 120
2342680	Manganese	106		P	80 - 120
2342680	Molybdenum	101		P	80 - 120
2342680	Nickel	102		P	80 - 120
2342680	Selenium	97.0		P	80 - 120
2342680	Silver	98.4		P	80 - 120
2342680	Thallium	102		P	80 - 120

Reference Method: EPA 8321B

Batch ID: P416713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342112	Acesulfame K	67.2	64.6	P/P	40 - 150
2342112	AMPA	87.5	88.8	P/P	40 - 150
2342112	Endothall	158	148	F/P	40 - 150
2342112	Glufosinate	84.7	85.2	P/P	40 - 150
2342112	Glyphosate	88.0	81.5	P/P	40 - 150
2342112	Sucralose	98.9	96.0	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P416992

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342488	2,4-D	78.5	74.0	P/P	40 - 150
2342488	2,4,5-T	58.5	63.9	P/P	40 - 150
2342488	Acetaminophen	81.5	83.3	P/P	30 - 150
2342488	Acetamiprid	76.2	69.8	P/P	40 - 150
2342488	Afidopyropen	61.9	63.4	P/P	30 - 150
2342488	Bentazon	94.7	109	P/P	30 - 150
2342488	Benzovindiflupyr	75.0	92.8	P/P	40 - 150
2342488	Carbamazepine	84.4	87.8	P/P	40 - 150
2342488	Clothianidin	95.5	94.4	P/P	40 - 150
2342488	Dinotefuran	83.0	87.9	P/P	40 - 150
2342488	Diuron	72.6	74.2	P/P	40 - 150
2342488	Fenuron	87.0	89.2	P/P	40 - 150
2342488	Fluridone	88.2	94.5	P/P	40 - 150
2342488	Hydrocodone	81.8	85.3	P/P	40 - 150
2342488	Ibuprofen	68.7	68.9	P/P	40 - 150
2342488	Imazapyr	75.6	81.9	P/P	40 - 150
2342488	Imidacloprid	89.0	90.5	P/P	40 - 150
2342488	Linuron	83.9	73.8	P/P	40 - 150
2342488	Mandestrobin	79.8	85.4	P/P	40 - 150
2342488	MCPP	79.1	78.8	P/P	40 - 150
2342488	Naproxen	74.4	67.7	P/P	40 - 150
2342488	Primidone	84.8	85.3	P/P	40 - 150
2342488	Pyraclostrobin	74.4	76.0	P/P	40 - 150
2342488	Silvex	59.0	65.8	P/P	40 - 150
2342488	Thiamethoxam	84.9	87.1	P/P	40 - 150
2342488	Tolfenpyrad	47.5	49.4	P/P	30 - 150
2342488	Triclopyr	64.1	68.1	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P416943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342516	Calcium	1.19	Spike	P	0 - 20
2342516	Iron	1.07	Spike	P	0 - 20
2342516	Magnesium	1.35	Spike	P	0 - 20
2342516	Potassium	1.41	Spike	P	0 - 20
2342516	Sodium	2.10	Spike	P	0 - 20
2342516	Strontium	1.72	Spike	P	0 - 20
2342516	Tin	5.73	Spike	P	0 - 20
2342516	Titanium	2.99	Spike	P	0 - 20
2342516	Vanadium	3.70	Spike	P	0 - 20
2342516	Zinc	3.55	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P416943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342516	Aluminum	1.35	Spike	P	0 - 20
2342516	Antimony	2.55	Spike	P	0 - 20
2342516	Arsenic	2.61	Spike	P	0 - 20
2342516	Barium	2.82	Spike	P	0 - 20
2342516	Beryllium	5.12	Spike	P	0 - 20
2342516	Boron	1.38	Spike	P	0 - 20
2342516	Cadmium	4.80	Spike	P	0 - 20
2342516	Chromium	1.95	Spike	P	0 - 20
2342516	Cobalt	2.13	Spike	P	0 - 20
2342516	Copper	3.09	Spike	P	0 - 20
2342516	Lead	2.39	Spike	P	0 - 20
2342516	Manganese	1.49	Spike	P	0 - 20
2342516	Molybdenum	2.88	Spike	P	0 - 20
2342516	Nickel	1.39	Spike	P	0 - 20
2342516	Selenium	4.56	Spike	P	0 - 20
2342516	Silver	3.54	Spike	P	0 - 20
2342516	Thallium	2.61	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P416713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342112	Acesulfame K	4.01	Spike	P	0 - 30
2342112	AMPA	1.43	Spike	P	0 - 30
2342112	Endothall	7.17	Spike	P	0 - 30
2342112	Glufosinate	0.539	Spike	P	0 - 30
2342112	Glyphosate	7.69	Spike	P	0 - 30
2342112	Sucralose	2.96	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P416992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P416992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342488	2,4-D	5.91	Spike	P	0 - 30
2342488	2,4,5-T	8.79	Spike	P	0 - 30
2342488	Acetaminophen	2.14	Spike	P	0 - 30
2342488	Acetamiprid	8.76	Spike	P	0 - 30
2342488	Afidopyropen	2.46	Spike	P	0 - 30
2342488	Bentazon	14.2	Spike	P	0 - 30
2342488	Benzovindiflupyr	21.3	Spike	P	0 - 30
2342488	Carbamazepine	3.87	Spike	P	0 - 30
2342488	Clothianidin	1.10	Spike	P	0 - 30
2342488	Dinotefuran	5.69	Spike	P	0 - 30
2342488	Diuron	2.17	Spike	P	0 - 30
2342488	Fenuron	2.48	Spike	P	0 - 30
2342488	Fluridone	6.89	Spike	P	0 - 30
2342488	Hydrocodone	4.15	Spike	P	0 - 30
2342488	Ibuprofen	0.292	Spike	P	0 - 30
2342488	Imazapyr	7.95	Spike	P	0 - 30
2342488	Imidacloprid	1.70	Spike	P	0 - 30
2342488	Linuron	12.8	Spike	P	0 - 30
2342488	Mandestrobin	6.73	Spike	P	0 - 30
2342488	MCP	0.342	Spike	P	0 - 30
2342488	Naproxen	9.37	Spike	P	0 - 30
2342488	Primidone	0.636	Spike	P	0 - 30
2342488	Pyraclostrobin	2.16	Spike	P	0 - 30
2342488	Silvex	10.9	Spike	P	0 - 30
2342488	Thiamethoxam	2.59	Spike	P	0 - 30
2342488	Tolfenpyrad	3.91	Spike	P	0 - 30
2342488	Triclopyr	6.00	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2342436

Field Sample ID: G1TLHR0171

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	93.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	102	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	65.1	P	30 - 160
EPA 8321B	Endothall-d6	120	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	78.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	61.6	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	99.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A113640
Included Lab Sample IDs: 2342436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	82.7	81.8	P/P	60 - 160
Sucralose	98.1	98.0	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A113642
Included Lab Sample IDs: 2342436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	109	108	P/P	60 - 160
Endothall	104	100	P/P	60 - 160
Glufosinate	100	97.1	P/P	60 - 160
Glyphosate	102	103	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A113656
Included Lab Sample IDs: 2342436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	89.2	84.4	P/P	50 - 150
2,4,5-T	100	99.7	P/P	50 - 150
Acetaminophen	96.6	96.1	P/P	60 - 160
Acetamiprid	101	97.4	P/P	50 - 150
Afidopyropen	93.6	85.7	P/P	50 - 150
Bentazon	102	111	P/P	50 - 160
Benzovindiflupyr	107	107	P/P	50 - 150
Carbamazepine	97.5	98.7	P/P	60 - 150
Clothianidin	103	101	P/P	60 - 150
Dinotefuran	95.0	97.4	P/P	50 - 150
Diuron	97.2	105	P/P	60 - 160
Fenuron	95.7	95.0	P/P	60 - 150
Fluridone	109	110	P/P	60 - 160
Hydrocodone	101	95.5	P/P	60 - 150
Ibuprofen	92.2	73.1	P/P	50 - 160
Imazapyr	82.4	83.4	P/P	50 - 150
Imidacloprid	91.4	96.0	P/P	60 - 150
Linuron	109	96.8	P/P	60 - 150
Mandestrobin	100	102	P/P	50 - 150
MCPP	93.5	96.6	P/P	50 - 150
Naproxen	86.0	104	P/P	50 - 160
Primidone	95.4	96.4	P/P	60 - 150
Pyraclostrobin	95.3	96.2	P/P	60 - 150
Silvex	87.3	79.5	P/P	50 - 150
Thiamethoxam	99.0	96.2	P/P	50 - 150
Tolfenpyrad	91.2	96.5	P/P	60 - 150
Triclopyr	94.2	74.6	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A113698
Included Lab Sample IDs: 2342437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113698

Included Lab Sample IDs: 2342437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.4	98.7	P/P	90 - 110
Antimony	99.0	99.4	P/P	90 - 110
Arsenic	98.5	99.0	P/P	90 - 110
Barium	97.8	97.3	P/P	90 - 110
Beryllium	92.5	91.7	P/P	90 - 110
Boron	95.7	95.1	P/P	90 - 110
Cadmium	99.1	99.4	P/P	90 - 110
Chromium	99.7	99.2	P/P	90 - 110
Cobalt	97.3	97.4	P/P	90 - 110
Copper	97.7	97.7	P/P	90 - 110
Lead	92.2	91.8	P/P	90 - 110
Manganese	101	102	P/P	90 - 110
Molybdenum	95.4	95.8	P/P	90 - 110
Nickel	98.4	98.6	P/P	90 - 110
Selenium	96.1	98.3	P/P	90 - 110
Silver	97.2	97.2	P/P	90 - 110
Thallium	93.4	93.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113744

Included Lab Sample IDs: 2342437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	98.7	98.7	P/P	90 - 110
Potassium	102	103	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Strontium	105	105	P/P	90 - 110
Tin	98.9	99.0	P/P	90 - 110
Titanium	99.4	101	P/P	90 - 110
Vanadium	102	101	P/P	90 - 110
Zinc	98.7	98.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113877

Included Lab Sample IDs: 2342437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	95 - 105
Magnesium	100	102	P/P	95 - 105

* 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	101	103	96.7			1.19
	Iron	104	103	104	105		1.07
	Magnesium	99.5	99.4	94.9			1.35
	Potassium	101	103	105	105		1.41
	Sodium	105	107	111	98.6		2.10
	Strontium	105	104	106	108		1.72
	Tin	99.6	94.4	100	98.9		5.73
	Titanium	102	99.8	103	104		2.99
	Vanadium	101	99.3	103	105		3.70
	Zinc	99.6	95.5	98.9	102		3.55
EPA 200.8 Rev. 5.4	Aluminum	98.7	102	97.8	99.2		1.35
	Antimony	101	105	102	105		2.55
	Arsenic	98.0	103	99.0	102		2.61
	Barium	101	106	101	104		2.82
	Beryllium	89.2	94.0	90.4	95.1		5.12
	Boron	98.1	106	99.0	101		1.38
	Cadmium	97.3	103	96.6	101		4.80
	Chromium	99.2	104	101	103		1.95
	Cobalt	97.2	101	97.3	99.4		2.13
	Copper	95.7	101	95.3	98.3		3.09
	Lead	93.7	97.4	92.8	95.0		2.39
	Manganese	101	106	103	105		1.49
	Molybdenum	95.4	101	97.1	100		2.88
	Nickel	98.5	102	98.9	100		1.39
	Selenium	94.5	97.0	93.5	97.9		4.56
	Silver	96.6	98.4	94.8	98.2		3.54
	Thallium	95.0	102	96.7	99.2		2.61
	2,4-D	72.9	78.5	74.0			5.91
	2,4,5-T	64.6	58.5	63.9			8.79
	Acesulfame K	80.2	67.2	64.6			4.01
EPA 8321B	Acetaminophen	85.8	81.5	83.3			2.14
	Acetamiprid	63.4	76.2	69.8			8.76
	Afidopyropen	66.2	61.9	63.4			2.46
	AMPA	112	87.5	88.8			1.43
	Bentazon	104	94.7	109			14.2
	Benzovindiflupyr	93.8	75.0	92.8			21.3
	Carbamazepine	92.5	84.4	87.8			3.87
	Clothianidin	101	95.5	94.4			1.10
	Dinotefuran	90.9	83.0	87.9			5.69
	Diuron	80.7	72.6	74.2			2.17
	Endothall	102	158	148			7.17
	Fenuron	93.0	87.0	89.2			2.48
	Fluridone	100	88.2	94.5			6.89
	Glufosinate	128	84.7	85.2			0.539
	Glyphosate	103	88.0	81.5			7.69
	Hydrocodone	90.6	81.8	85.3			4.15
	Ibuprofen	89.2	68.7	68.9			0.292
	Imazapyr	89.8	75.6	81.9			7.95
	Imidacloprid	92.2	89.0	90.5			1.70
	Linuron	87.9	83.9	73.8			12.8
	Mandestrobin	90.7	79.8	85.4			6.73
	MCPP	87.6	79.1	78.8			0.342
	Naproxen	66.2	74.4	67.7			9.37
	Primidone	79.7	84.8	85.3			0.636

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
EPA 8321B	Pyraclostrobin	77.1	74.4	76.0		2.16
	Silvex	55.3	59.0	65.8		10.9
	Sucralose	102	98.9	96.0		2.96
	Thiamethoxam	90.4	84.9	87.1		2.59
	Tolfenpyrad	44.8	47.5	49.4		3.91
	Triclopyr	66.5	64.1	68.1		6.00

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	2342437
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2342437
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2342436
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2342437

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	07/19/2022	07/21/2022 09:48	Megan Whitefoot	07/27/2022 21:01	McKinley C Carter	2342437
	07/19/2022	07/21/2022 09:48	Megan Whitefoot	08/02/2022 15:17	McKinley C Carter	2342437
EPA 200.8 Rev. 5.4	07/19/2022	07/21/2022 09:48	Megan Whitefoot	07/25/2022 21:23	Emily M Philpot	2342437
EPA 8321B	07/19/2022	07/20/2022 14:30	Umesh Chiluwal	07/20/2022 17:58	Umesh Chiluwal	2342436
	07/19/2022	07/20/2022 14:30	Umesh Chiluwal	07/21/2022 02:54	Umesh Chiluwal	2342436
	07/19/2022	07/22/2022 09:30	June Rhew	07/23/2022 06:14	Juyoung Kim	2342436
SM 2340 B-2011	07/19/2022			08/02/2022 15:17	McKinley C Carter	2342437