

Chemical Analysis Report

TLH-ROC-2022-11-03-03

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

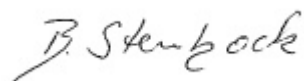
Event Description: **Run 18**
Request ID: **RQ-2022-10-24-25**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 29-NOV-2022 14:20



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: 11/03/2022 10:50

Field ID: G1TLHR0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367496	EPA 8321B	2,4-D	0.0020	U	ug/L	P422148	
		Acesulfame K	0.10	U	ug/L	P421996	
		2,4,5-T	0.0040	U	ug/L	P422148	
		AMPA	0.10	U	ug/L	P421996	
		Acetaminophen	0.0080	U	ug/L	P422148	
		Acetamiprid	0.0020	U	ug/L	P422148	
		Endothall	0.25	U	ug/L	P421996	
		Glufosinate	0.10	U	ug/L	P421996	
		Glyphosate	0.10	U	ug/L	P421996	
		Afidopyropen	0.0020	U	ug/L	P422148	
		Bentazon	8.0E-04	U	ug/L	P422148	
		Sucralose	0.13		ug/L	P421996	
		Benzovindiflupyr	0.0020	U	ug/L	P422148	
		Carbamazepine	8.0E-04	U	ug/L	P422148	
		Clothianidin	0.0020	U	ug/L	P422148	
		Dinotefuran	0.0020	U	ug/L	P422148	
		Diuron	0.0020	U	ug/L	P422148	
		Fenuron	0.032	U	ug/L	P422148	
		Fluridone	8.0E-04	U	ug/L	P422148	
		Imazapyr	0.0040	U	ug/L	P422148	
		Hydrocodone	0.0020	U	ug/L	P422148	
		Ibuprofen	0.20	U	ug/L	P422148	
		Imidacloprid	0.0020	U	ug/L	P422148	MS
		Linuron	0.0040	U	ug/L	P422148	
		Mandestrobin	0.0020	U	ug/L	P422148	
		MCPP	0.0040	U	ug/L	P422148	
		Naproxen	0.0080	U	ug/L	P422148	
		Primidone	0.0040	U	ug/L	P422148	
		Pyraclostrobin	0.0020	U	ug/L	P422148	
		Silvex	0.0040	U	ug/L	P422148	
		Thiamethoxam	0.0020	U	ug/L	P422148	MS
		Tolfenpyrad	0.0020	U	ug/L	P422148	
		Triclopyr	0.0040	U	ug/L	P422148	
2367497	EPA 200.7 Rev. 4.4	Calcium	4.70		mg/L	P422008	
		Iron	1.35E+03		ug/L	P422008	
		Magnesium	1.40		mg/L	P422008	
		Potassium	0.47	I	mg/L	P422008	
		Sodium	3.2		mg/L	P422008	
		Strontium	12.6		ug/L	P422008	
		Tin	3.0	U	ug/L	P422008	
		Titanium	2.1	I	ug/L	P422008	
		Vanadium	2.0	U	ug/L	P422008	
		Zinc	5.0	U	ug/L	P422008	
	EPA 200.8 Rev. 5.4	Aluminum	448		ug/L	P422008	

Field ID: G1TLHR0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367497	EPA 200.8 Rev. 5.4	Antimony	0.050	U	ug/L	P422008	
		Arsenic	0.66		ug/L	P422008	
		Barium	14.8		ug/L	P422008	
		Beryllium	0.022	I	ug/L	P422008	
		Boron	11.7		ug/L	P422008	
		Cadmium	0.020	U	ug/L	P422008	
		Chromium	0.80	I	ug/L	P422008	
		Cobalt	0.139		ug/L	P422008	
		Copper	0.40	U	ug/L	P422008	
		Lead	0.44		ug/L	P422008	
		Manganese	62.2		ug/L	P422008	
		Molybdenum	0.15	U	ug/L	P422008	
		Nickel	0.50	U	ug/L	P422008	
		Selenium	0.20	U	ug/L	P422008	
		Silver	0.010	U	ug/L	P422008	
		Thallium	0.10	U	ug/L	P422008	
	SM 2340 B-2011	Hardness	17.5		mg/L	P422008	

Ref. Method and Comment:

EPA 8321B: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for titanium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for aluminum are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P422008

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: P422008

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: P421996

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: P422148

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: P422148

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	0.20	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: P422008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	103		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	100		P	85 - 115
Sodium	102		P	85 - 115
Strontium	105		P	85 - 115
Tin	101		P	85 - 115
Titanium	99.1		P	85 - 115
Vanadium	98.7		P	85 - 115
Zinc	97.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P422008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	98.1		P	85 - 115
Barium	106		P	85 - 115
Beryllium	94.2		P	85 - 115
Boron	107		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	102		P	85 - 115
Cobalt	99.6		P	85 - 115
Copper	97.4		P	85 - 115
Lead	96.7		P	85 - 115
Manganese	108		P	85 - 115
Molybdenum	99.5		P	85 - 115
Nickel	99.3		P	85 - 115
Selenium	94.7		P	85 - 115
Silver	101		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P421996

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	125		P	40 - 150
AMPA	91.5		P	40 - 150
Endothall	115		P	40 - 150
Glufosinate	79.5		P	40 - 150
Glyphosate	92.9		P	40 - 150
Sucralose	98.9		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P422148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	104		P	40 - 150
2,4,5-T	89.5		P	40 - 150
Acetaminophen	96.6		P	30 - 150
Acetamiprid	88.3		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P422148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	37.4		P	30 - 150
Bentazon	97.7		P	30 - 150
Benzovindiflupyr	89.3		P	40 - 150
Carbamazepine	97.1		P	40 - 150
Clothianidin	98.8		P	40 - 150
Dinotefuran	104		P	40 - 150
Diuron	81.6		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	102		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	94.7		P	40 - 150
Imazapyr	95.8		P	40 - 150
Imidacloprid	103		P	40 - 150
Linuron	82.3		P	40 - 150
Mandestrobin	105		P	40 - 150
MCPP	105		P	40 - 150
Naproxen	86.3		P	40 - 150
Primidone	95.2		P	40 - 150
Pyraclostrobin	86.5		P	40 - 150
Silvex	79.6		P	40 - 150
Thiamethoxam	104		P	40 - 150
Tolfenpyrad	50.5		P	30 - 150
Triclopyr	90.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P422008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367205	Calcium	99.5	99.6	P/P	80 - 120
2367205	Iron	100	101	P/P	80 - 120
2367205	Magnesium	101	101	P/P	80 - 120
2367205	Potassium	98.6	98.1	P/P	80 - 120
2367205	Sodium	89.3	87.5	P/P	80 - 120
2367205	Strontium	99.4	97.9	P/P	80 - 120
2367205	Tin	95.7	97.9	P/P	80 - 120
2367205	Vanadium	96.5	95.7	P/P	80 - 120
2367205	Zinc	96.4	94.2	P/P	80 - 120
2367514	Calcium	102		P	80 - 120
2367514	Iron	103		P	80 - 120
2367514	Magnesium	103		P	80 - 120
2367514	Potassium	99.5		P	80 - 120
2367514	Sodium	99.9		P	80 - 120
2367514	Strontium	103		P	80 - 120
2367514	Tin	102		P	80 - 120
2367514	Titanium	101		P	80 - 120
2367514	Vanadium	101		P	80 - 120
2367514	Zinc	97.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P422008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367205	Antimony	92.5	90.5	P/P	80 - 120
2367205	Arsenic	98.1	101	P/P	80 - 120
2367205	Barium	109	109	P/P	80 - 120
2367205	Beryllium	89.9	94.1	P/P	80 - 120
2367205	Boron	104	106	P/P	80 - 120
2367205	Cadmium	99.9	105	P/P	80 - 120
2367205	Chromium	105	105	P/P	80 - 120
2367205	Cobalt	101	102	P/P	80 - 120
2367205	Copper	103	103	P/P	80 - 120
2367205	Lead	97.2	96.8	P/P	80 - 120
2367205	Manganese	109	109	P/P	80 - 120
2367205	Molybdenum	97.9	97.0	P/P	80 - 120
2367205	Nickel	101	102	P/P	80 - 120
2367205	Selenium	97.0	102	P/P	80 - 120
2367205	Silver	100	101	P/P	80 - 120
2367205	Thallium	102	102	P/P	80 - 120
2367514	Antimony	105		P	80 - 120
2367514	Arsenic	102		P	80 - 120
2367514	Barium	108		P	80 - 120
2367514	Beryllium	92.6		P	80 - 120
2367514	Boron	108		P	80 - 120
2367514	Cadmium	102		P	80 - 120
2367514	Chromium	103		P	80 - 120
2367514	Cobalt	99.4		P	80 - 120
2367514	Copper	99.9		P	80 - 120
2367514	Lead	96.5		P	80 - 120
2367514	Manganese	109		P	80 - 120
2367514	Molybdenum	99.3		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P422008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367514	Nickel	98.4		P	80 - 120
2367514	Selenium	100		P	80 - 120
2367514	Silver	102		P	80 - 120
2367514	Thallium	100		P	80 - 120

Reference Method: EPA 8321B

Batch ID: P421996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367490	Acesulfame K	140	144	P/P	40 - 150
2367490	AMPA	88.8	84.1	P/P	40 - 150
2367490	Endothall	120	120	P/P	40 - 150
2367490	Glufosinate	73.9	79.4	P/P	40 - 150
2367490	Glyphosate	81.2	88.1	P/P	40 - 150
2367490	Sucralose	97.5	97.7	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P422148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368036	2,4,5-T	80.6	79.5	P/P	40 - 150
2368036	Acetaminophen	110	115	P/P	30 - 150
2368036	Acetamiprid	97.8	93.4	P/P	40 - 150
2368036	Afidopyropen	41.9	39.2	P/P	30 - 150
2368036	Bentazon	88.1	90.8	P/P	30 - 150
2368036	Benzovindiflupyr	92.0	96.1	P/P	40 - 150
2368036	Carbamazepine	97.7	99.8	P/P	40 - 150
2368036	Clothianidin	125	125	P/P	40 - 150
2368036	Dinotefuran	133	137	P/P	40 - 150
2368036	Diuron	79.6	80.9	P/P	40 - 150
2368036	Fenuron	99.8	105	P/P	40 - 150
2368036	Fluridone	99.8	103	P/P	40 - 150
2368036	Hydrocodone	123	131	P/P	40 - 150
2368036	Ibuprofen	97.2	92.1	P/P	40 - 150
2368036	Imazapyr	108	113	P/P	40 - 150
2368036	Imidacloprid	164	174	F/F	40 - 150
2368036	Linuron	81.1	80.7	P/P	40 - 150
2368036	Mandestrobin	107	109	P/P	40 - 150
2368036	MCPP	104	109	P/P	40 - 150
2368036	Naproxen	76.9	84.6	P/P	40 - 150
2368036	Primidone	118	117	P/P	40 - 150
2368036	Pyraclostrobin	96.5	98.6	P/P	40 - 150
2368036	Silvex	90.6	93.7	P/P	40 - 150
2368036	Thiamethoxam	158	165	F/F	40 - 150
2368036	Tolfenpyrad	55.3	56.0	P/P	30 - 150
2368036	Triclopyr	86.5	84.8	P/P	40 - 150

Quality Assurance Report

Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P422008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367205	Calcium	0.104	Spike	P	0 - 20
2367205	Iron	0.456	Spike	P	0 - 20
2367205	Magnesium	0.283	Spike	P	0 - 20
2367205	Potassium	0.531	Spike	P	0 - 20
2367205	Sodium	1.05	Spike	P	0 - 20
2367205	Strontium	1.48	Spike	P	0 - 20
2367205	Tin	2.22	Spike	P	0 - 20
2367205	Titanium	0.719	Spike	P	0 - 20
2367205	Vanadium	0.891	Spike	P	0 - 20
2367205	Zinc	2.30	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P422008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367205	Aluminum	6.82	Spike	P	0 - 20
2367205	Antimony	2.18	Spike	P	0 - 20
2367205	Arsenic	3.01	Spike	P	0 - 20
2367205	Barium	0.0515	Spike	P	0 - 20
2367205	Beryllium	3.44	Spike	P	0 - 20
2367205	Boron	1.65	Spike	P	0 - 20
2367205	Cadmium	4.70	Spike	P	0 - 20
2367205	Chromium	0.527	Spike	P	0 - 20
2367205	Cobalt	1.09	Spike	P	0 - 20
2367205	Copper	0.476	Spike	P	0 - 20
2367205	Lead	0.321	Spike	P	0 - 20
2367205	Manganese	0.131	Spike	P	0 - 20
2367205	Molybdenum	0.895	Spike	P	0 - 20
2367205	Nickel	1.21	Spike	P	0 - 20
2367205	Selenium	4.95	Spike	P	0 - 20
2367205	Silver	0.737	Spike	P	0 - 20
2367205	Thallium	0.113	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P421996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367490	Acesulfame K	3.00	Spike	P	0 - 30
2367490	AMPA	5.35	Spike	P	0 - 30
2367490	Endothall	0.484	Spike	P	0 - 30
2367490	Glufosinate	7.21	Spike	P	0 - 30
2367490	Glyphosate	8.22	Spike	P	0 - 30
2367490	Sucralose	0.190	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P422148

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: P422148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368036	2,4-D	3.46	Spike	P	0 - 30
2368036	2,4,5-T	1.43	Spike	P	0 - 30
2368036	Acetaminophen	4.72	Spike	P	0 - 30
2368036	Acetamiprid	4.59	Spike	P	0 - 30
2368036	Afidopyropen	6.75	Spike	P	0 - 30
2368036	Bentazon	3.09	Spike	P	0 - 30
2368036	Benzovindiflupyr	4.35	Spike	P	0 - 30
2368036	Carbamazepine	2.12	Spike	P	0 - 30
2368036	Clothianidin	0.201	Spike	P	0 - 30
2368036	Dinotefuran	2.98	Spike	P	0 - 30
2368036	Diuron	0.799	Spike	P	0 - 30
2368036	Fenuron	4.64	Spike	P	0 - 30
2368036	Fluridone	2.96	Spike	P	0 - 30
2368036	Hydrocodone	5.87	Spike	P	0 - 30
2368036	Ibuprofen	5.38	Spike	P	0 - 30
2368036	Imazapyr	4.47	Spike	P	0 - 30
2368036	Imidacloprid	6.07	Spike	P	0 - 30
2368036	Linuron	0.461	Spike	P	0 - 30
2368036	Mandestrobin	1.35	Spike	P	0 - 30
2368036	MCPP	4.77	Spike	P	0 - 30
2368036	Naproxen	9.54	Spike	P	0 - 30
2368036	Primidone	0.482	Spike	P	0 - 30
2368036	Pyraclostrobin	2.10	Spike	P	0 - 30
2368036	Silvex	3.39	Spike	P	0 - 30
2368036	Thiamethoxam	4.23	Spike	P	0 - 30
2368036	Tolfenpyrad	1.09	Spike	P	0 - 30
2368036	Triclopyr	2.01	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2367496

Field Sample ID: G1TLHR0171

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.4	P	30 - 160
EPA 8321B	Diuron-d6	80.0	P	30 - 160
EPA 8321B	Endothall-d6	118	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	78.2	P	30 - 160
EPA 8321B	Primidone-d5	105	P	30 - 160
EPA 8321B	Sucralose-d6	117	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A115819

Included Lab Sample IDs: 2367497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	104	P/P	90 - 110
Antimony	102	103	P/P	90 - 110
Arsenic	100	101	P/P	90 - 110
Barium	103	104	P/P	90 - 110
Beryllium	98.8	98.6	P/P	90 - 110
Boron	97.9	104	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	99.7	101	P/P	90 - 110
Cobalt	98.5	98.6	P/P	90 - 110
Copper	97.9	98.7	P/P	90 - 110
Lead	94.6	95.7	P/P	90 - 110
Manganese	104	106	P/P	90 - 110
Molybdenum	99.0	99.8	P/P	90 - 110
Nickel	98.7	99.1	P/P	90 - 110
Selenium	103	104	P/P	90 - 110
Silver	99.8	101	P/P	90 - 110
Thallium	100	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A115877

Included Lab Sample IDs: 2367496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	95.3	92.9	P/P	60 - 160
Endothall	125	113	P/P	60 - 160
Glufosinate	81.4	79.6	P/P	60 - 160
Glyphosate	89.3	91.5	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A115879

Included Lab Sample IDs: 2367496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	133	130	P/P	60 - 160
Sucralose	101	96.4	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A115912

Included Lab Sample IDs: 2367496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	84.7	88.0	P/P	50 - 150
2,4,5-T	93.9	102	P/P	50 - 150
Acetaminophen	97.3	91.9	P/P	60 - 160
Acetamiprid	102	97.3	P/P	50 - 150
Afidopyropen	88.0	86.5	P/P	50 - 150
Bentazon	95.0	96.8	P/P	50 - 160
Benzovindiflupyr	90.9	92.7	P/P	50 - 150
Carbamazepine	103	100	P/P	60 - 150
Clothianidin	96.2	94.1	P/P	60 - 150
Dinotefuran	103	101	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A115912
 Included Lab Sample IDs: 2367496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	94.8	95.7	P/P	60 - 160
Fenuron	86.4	91.6	P/P	60 - 150
Fluridone	94.9	88.8	P/P	60 - 160
Hydrocodone	97.6	99.6	P/P	60 - 150
Ibuprofen	110	106	P/P	50 - 160
Imazapyr	96.9	100	P/P	50 - 150
Imidacloprid	94.0	87.1	P/P	60 - 150
Linuron	89.0	81.2	P/P	60 - 150
Mandestrobin	99.8	98.6	P/P	50 - 150
MCPP	96.0	95.6	P/P	50 - 150
Naproxen	98.1	83.6	P/P	50 - 160
Primidone	98.8	91.6	P/P	60 - 150
Pyraclostrobin	89.8	89.8	P/P	60 - 150
Silvex	85.1	89.3	P/P	50 - 150
Thiamethoxam	99.2	99.9	P/P	50 - 150
Tolfenpyrad	82.6	82.5	P/P	60 - 150
Triclopyr	93.9	101	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4
 Run ID: A116116
 Included Lab Sample IDs: 2367497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	101	P/P	90 - 110
Iron	100	101	P/P	90 - 110
Magnesium	99.6	101	P/P	90 - 110
Potassium	98.7	98.0	P/P	90 - 110
Sodium	99.8	99.0	P/P	90 - 110
Strontium	102	104	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	99.7	100	P/P	90 - 110
Vanadium	99.8	101	P/P	90 - 110
Zinc	99.6	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Calcium	104	99.5	99.6	102		0.104
	Iron	103	100	101	103		0.456
	Magnesium	103	101	101	103		0.283
	Potassium	100	98.6	98.1	99.5		0.531
	Sodium	102	89.3	87.5	99.9		1.05
	Strontium	105	99.4	97.9	103		1.48
	Tin	101	102	95.7	97.9		2.22
	Titanium	99.1	101				0.719
	Vanadium	98.7	96.5	95.7	101		0.891
	Zinc	97.1	96.4	94.2	97.9		2.30
EPA 200.8 Rev. 5.4	Aluminum	104					6.82
	Antimony	103	92.5	90.5	105		2.18
	Arsenic	98.1	98.1	101	102		3.01
	Barium	106	109	109	108		0.0515
	Beryllium	94.2	89.9	94.1	92.6		3.44
	Boron	107	104	106	108		1.65
	Cadmium	101	99.9	105	102		4.70
	Chromium	102	105	105	103		0.527
	Cobalt	99.6	101	102	99.4		1.09
	Copper	97.4	103	103	99.9		0.476
	Lead	96.7	97.2	96.8	96.5		0.321
	Manganese	108	109	109	109		0.131
	Molybdenum	99.5	97.9	97.0	99.3		0.895
	Nickel	99.3	101	102	98.4		1.21
	Selenium	94.7	97.0	102	100		4.95
	Silver	101	100	101	102		0.737
	Thallium	101	102	102	100		0.113
	2,4-D	104					3.46
	2,4,5-T	89.5	80.6	79.5			1.43
	Acesulfame K	125	140	144			3.00
EPA 8321B	Acetaminophen	96.6	110	115			4.72
	Acetamiprid	88.3	97.8	93.4			4.59
	Afidopyropen	37.4	41.9	39.2			6.75
	AMPA	91.5	88.8	84.1			5.35
	Bentazon	97.7	88.1	90.8			3.09
	Benzovindiflupyr	89.3	92.0	96.1			4.35
	Carbamazepine	97.1	97.7	99.8			2.12
	Clothianidin	98.8	125	125			0.201
	Dinotefuran	104	133	137			2.98
	Diuron	81.6	79.6	80.9			0.799
	Endothall	115	120	120			0.484
	Fenuron	110	99.8	105			4.64
	Fluridone	102	99.8	103			2.96
	Glufosinate	79.5	73.9	79.4			7.21
	Glyphosate	92.9	81.2	88.1			8.22
	Hydrocodone	105	123	131			5.87
	Ibuprofen	94.7	97.2	92.1			5.38
	Imazapyr	95.8	108	113			4.47
	Imidacloprid	103	164	174			6.07
	Linuron	82.3	81.1	80.7			0.461
	Mandestrobin	105	107	109			1.35
	MCPP	105	104	109			4.77
	Naproxen	86.3	76.9	84.6			9.54
	Primidone	95.2	118	117			0.482

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
EPA 8321B	Pyraclostrobin	86.5	96.5	98.6		2.10
	Silvex	79.6	90.6	93.7		3.39
	Sucralose	98.9	97.5	97.7		0.190
	Thiamethoxam	104	158	165		4.23
	Tolfenpyrad	50.5	55.3	56.0		1.09
	Triclopyr	90.2	86.5	84.8		2.01

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	2367497
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2367497
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2367496
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2367497

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	11/03/2022	11/07/2022 12:10	George D Taylor	11/22/2022 18:55	McKinley C Carter	2367497
EPA 200.8 Rev. 5.4	11/03/2022	11/07/2022 12:10	George D Taylor	11/08/2022 18:46	Megan Whitefoot	2367497
EPA 8321B	11/03/2022	11/09/2022 10:20	Manjita Shrestha	11/09/2022 11:35	Manjita Shrestha	2367496
	11/03/2022	11/09/2022 10:20	Manjita Shrestha	11/10/2022 02:33	Manjita Shrestha	2367496
	11/03/2022	11/10/2022 09:30	June Rhew	11/10/2022 19:52	Juyoung Kim	2367496
SM 2340 B-2011	11/03/2022			11/22/2022 18:55	McKinley C Carter	2367497