

Chemical Analysis Report

CEN-DIST-2022-01-04-01

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

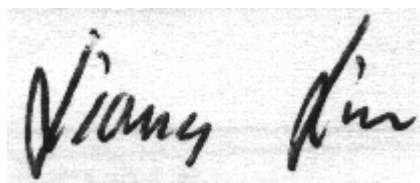
Event Description: **Run 10**
Request ID: **RQ-2022-01-03-26**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Matthew Bearden

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-JAN-2022 14:04

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: Sweetwater Creek @ 35m US of Cress Run

Collection Date/Time: 01/03/2022 10:50

Field ID: G2CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297181	EPA 8321B	2,4-D	0.0052	I	ug/L	P408154	
		Acesulfame K	0.51		ug/L	P408153	
		2,4,5-T	0.0040	U	ug/L	P408154	
		AMPA	0.57		ug/L	P408153	
		Acetaminophen	0.0080	U	ug/L	P408154	
		Acetamiprid	0.0020	U	ug/L	P408154	
		Endothall	0.25	U	ug/L	P408153	
		Glufosinate	0.10	U	ug/L	P408153	
		Glyphosate	1.4		ug/L	P408153	
		Afidopyropen	0.0020	U	ug/L	P408154	
		Bentazon	0.42		ug/L	P408154	
		Sucralose	2.8		ug/L	P408153	
		Benzovindiflupyr	0.0020	U	ug/L	P408154	
		Carbamazepine	0.010		ug/L	P408154	
		Clothianidin	0.0072	I	ug/L	P408154	
		Dinotefuran	0.0020	U	ug/L	P408154	
		Diuron	0.0029	I	ug/L	P408154	
		Fenuron	0.016	U	ug/L	P408154	
		Fluridone	0.0085		ug/L	P408154	
		Imazapyr	0.14		ug/L	P408154	
		Hydrocodone	0.0020	U	ug/L	P408154	
		Ibuprofen	0.020	U	ug/L	P408154	
		Imidacloprid	0.012		ug/L	P408154	
		Linuron	0.0040	U	ug/L	P408154	
		Mandestrobin	0.0020	U	ug/L	P408154	
		MCPP	0.0040	U	ug/L	P408154	
		Naproxen	0.0080	U	ug/L	P408154	
		Primidone	0.023		ug/L	P408154	
		Pyraclostrobin	0.0020	U	ug/L	P408154	
		Silvex	0.0040	U	ug/L	P408154	
		Thiamethoxam	0.0020	U	ug/L	P408154	
		Tolfenpyrad	0.0020	U	ug/L	P408154	RPD
		Triclopyr	0.0040	U	ug/L	P408154	

Sample Location: Cow Creek at Osteen Maytown Road (2952)

Collection Date/Time: 01/03/2022 13:33

Field ID: G2CE0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297183	EPA 200.7 Rev. 4.4	Barium	7.7		ug/L	P408105	
		Calcium	4.53		mg/L	P408105	
		Iron	910		ug/L	P408105	
		Magnesium	1.35		mg/L	P408105	
		Manganese	9.5		ug/L	P408105	
		Potassium	0.30	U	mg/L	P408105	
		Sodium	9.2		mg/L	P408105	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P408105	
		Aluminum	306		ug/L	P408105	
		Antimony	0.050	U	ug/L	P408105	
		Arsenic	0.30		ug/L	P408105	
		Beryllium	0.018	I	ug/L	P408105	
		Boron**	26.8		ug/L	P408105	
		Cadmium	0.020	U	ug/L	P408105	
		Chromium	0.40	U	ug/L	P408105	
		Copper	0.40	U	ug/L	P408105	
		Lead	0.32	I	ug/L	P408105	
		Nickel	0.50	U	ug/L	P408105	
		Selenium	0.20	U	ug/L	P408105	
		Silver	0.010	U	ug/L	P408105	
		Thallium	0.10	U	ug/L	P408105	
	SM 2340B	Hardness	16.9		mg/L	P408105	

Sample Location: Sweetwater Creek @ US of DeLeon St.

Collection Date/Time: 01/03/2022 11:14

Field ID: G2CE0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297182	EPA 8321B	2,4-D	0.0031	I	ug/L	P408154	
		Acesulfame K	0.24	I	ug/L	P408153	
		2,4,5-T	0.0040	U	ug/L	P408154	
		AMPA	0.59		ug/L	P408153	
		Acetaminophen	0.0080	U	ug/L	P408154	
		Acetamiprid	0.0020	U	ug/L	P408154	
		Endothall	0.25	U	ug/L	P408153	
		Glufosinate	0.10	U	ug/L	P408153	
		Glyphosate	1.6		ug/L	P408153	
		Afidopyropen	0.0020	U	ug/L	P408154	
		Bentazon	0.32		ug/L	P408154	
		Sucralose	1.6		ug/L	P408153	
		Benzovindiflupyr	0.0020	U	ug/L	P408154	
		Carbamazepine	0.0093		ug/L	P408154	
		Clothianidin	0.0084		ug/L	P408154	
		Dinotefuran	0.0020	U	ug/L	P408154	
		Diuron	0.0024	I	ug/L	P408154	
		Fenuron	0.016	U	ug/L	P408154	
		Fluridone	0.0070		ug/L	P408154	
		Imazapyr	0.12		ug/L	P408154	
		Hydrocodone	0.0020	U	ug/L	P408154	
		Ibuprofen	0.020	U	ug/L	P408154	
		Imidacloprid	0.010		ug/L	P408154	
		Linuron	0.0040	U	ug/L	P408154	
		Mandestrobin	0.0020	U	ug/L	P408154	
		MCPP	0.0040	U	ug/L	P408154	
		Naproxen	0.0080	U	ug/L	P408154	
		Primidone	0.014	I	ug/L	P408154	
		Pyraclostrobin	0.0020	U	ug/L	P408154	
		Silvex	0.0040	U	ug/L	P408154	
		Thiamethoxam	0.0020	U	ug/L	P408154	
		Tolfenpyrad	0.0020	U	ug/L	P408154	RPD
		Triclopyr	0.0040	U	ug/L	P408154	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408105

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408105

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
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P408153

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: P408154

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P408154

Component	Result	Code	Units
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
MCP	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: P408105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	105		P	85 - 115
Calcium	106		P	85 - 115
Iron	112		P	85 - 115
Magnesium	110		P	85 - 115
Manganese	107		P	85 - 115
Potassium	105		P	85 - 115
Sodium	106		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	98.8		P	85 - 115
Arsenic	102		P	85 - 115
Beryllium	99.6		P	85 - 115
Boron	97.5		P	85 - 115
Cadmium	99.2		P	85 - 115
Chromium	100		P	85 - 115
Copper	103		P	85 - 115
Lead	96.3		P	85 - 115
Nickel	104		P	85 - 115
Selenium	101		P	85 - 115
Silver	101		P	85 - 115
Thallium	107		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P408153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	95.5		P	40 - 150
AMPA	99.8		P	40 - 160
Endothall	85.4		P	40 - 150
Glufosinate	104		P	40 - 160
Glyphosate	104		P	40 - 160
Sucralose	86.3		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P408154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.0		P	40 - 150
2,4,5-T	102		P	40 - 150
Acetaminophen	93.4		P	30 - 150
Acetamiprid	90.0		P	40 - 150
Afidopyropen	70.2		P	40 - 150
Bentazon	104		P	30 - 150
Benzovindiflupyr	82.0		P	40 - 150
Carbamazepine	93.8		P	40 - 150
Clothianidin	84.9		P	40 - 150
Dinotefuran	104		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P408154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	83.3		P	40 - 150
Fenuron	102		P	40 - 150
Fluridone	91.6		P	40 - 150
Hydrocodone	97.4		P	40 - 150
Ibuprofen	108		P	40 - 150
Imazapyr	88.5		P	40 - 150
Imidacloprid	101		P	40 - 150
Linuron	81.2		P	40 - 150
Mandestrobin	93.2		P	40 - 150
MCPP	96.1		P	40 - 150
Naproxen	74.8		P	40 - 150
Primidone	85.9		P	40 - 150
Pyraclostrobin	81.2		P	40 - 150
Silvex	92.5		P	40 - 150
Thiamethoxam	106		P	40 - 150
Tolfenpyrad	58.2		P	30 - 150
Triclopyr	108		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296796	Barium	102	99.9	P/P	80 - 120
2296796	Calcium	101		P	80 - 120
2296796	Iron	109	109	P/P	80 - 120
2296796	Magnesium	105	105	P/P	80 - 120
2296796	Manganese	103	102	P/P	80 - 120
2296796	Potassium	103	102	P/P	80 - 120
2296796	Sodium	105	104	P/P	80 - 120
2296796	Zinc	100	99.8	P/P	80 - 120
2296802	Barium	105		P	80 - 120
2296802	Calcium	103		P	80 - 120
2296802	Iron	112		P	80 - 120
2296802	Magnesium	105		P	80 - 120
2296802	Manganese	105		P	80 - 120
2296802	Potassium	109		P	80 - 120
2296802	Sodium	106		P	80 - 120
2296802	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2296796	Aluminum	99.0	98.3	P/P	80 - 120
2296796	Antimony	101	100	P/P	80 - 120
2296796	Arsenic	99.9	99.1	P/P	80 - 120
2296796	Beryllium	99.0	98.5	P/P	80 - 120
2296796	Boron	99.8	100	P/P	80 - 120
2296796	Cadmium	102	101	P/P	80 - 120
2296796	Chromium	101	100	P/P	80 - 120
2296796	Copper	97.7	97.7	P/P	80 - 120
2296796	Lead	94.7	96.0	P/P	80 - 120
2296796	Nickel	97.7	97.7	P/P	80 - 120
2296796	Selenium	99.5	98.8	P/P	80 - 120
2296796	Silver	99.3	99.5	P/P	80 - 120
2296796	Thallium	108	108	P/P	80 - 120
2296802	Aluminum	101		P	80 - 120
2296802	Antimony	101		P	80 - 120
2296802	Arsenic	100		P	80 - 120
2296802	Beryllium	101		P	80 - 120
2296802	Boron	102		P	80 - 120
2296802	Cadmium	102		P	80 - 120
2296802	Chromium	103		P	80 - 120
2296802	Copper	99.7		P	80 - 120
2296802	Lead	97.3		P	80 - 120
2296802	Nickel	98.3		P	80 - 120
2296802	Selenium	101		P	80 - 120
2296802	Silver	101		P	80 - 120
2296802	Thallium	110		P	80 - 120

Reference Method: EPA 8321B

Batch ID: P408153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P408153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297068	Acesulfame K	70.8	69.6	P/P	40 - 150
2297068	AMPA	97.9	99.2	P/P	40 - 160
2297068	Endothall	98.3	94.5	P/P	40 - 150
2297068	Glufosinate	106	105	P/P	40 - 160
2297068	Glyphosate	102	104	P/P	40 - 160
2297068	Sucralose	89.8	90.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P408154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297068	2,4-D	79.4	99.7	P/P	40 - 150
2297068	2,4,5-T	91.9	88.9	P/P	40 - 150
2297068	Acetaminophen	91.9	99.2	P/P	30 - 150
2297068	Acetamiprid	88.6	88.4	P/P	40 - 150
2297068	Afidopyropen	75.3	70.0	P/P	40 - 150
2297068	Bentazon	81.0	101	P/P	30 - 150
2297068	Benzovindiflupyr	80.2	85.0	P/P	40 - 150
2297068	Carbamazepine	87.2	96.0	P/P	40 - 150
2297068	Clothianidin	103	105	P/P	40 - 150
2297068	Dinotefuran	103	105	P/P	40 - 150
2297068	Diuron	73.3	81.4	P/P	40 - 150
2297068	Fenuron	98.2	103	P/P	40 - 150
2297068	Fluridone	87.6	87.0	P/P	40 - 150
2297068	Hydrocodone	89.3	94.8	P/P	40 - 150
2297068	Ibuprofen	80.0	81.2	P/P	40 - 150
2297068	Imazapyr	78.1	96.7	P/P	40 - 150
2297068	Imidacloprid	89.3	95.8	P/P	40 - 150
2297068	Linuron	95.0	91.0	P/P	40 - 150
2297068	Mandestrobin	91.0	101	P/P	40 - 150
2297068	MCPP	95.2	99.5	P/P	40 - 150
2297068	Naproxen	92.7	82.5	P/P	40 - 150
2297068	Primidone	116	108	P/P	40 - 150
2297068	Pyraclostrobin	90.3	101	P/P	40 - 150
2297068	Silvex	99.0	101	P/P	40 - 150
2297068	Thiamethoxam	103	108	P/P	40 - 150
2297068	Tolfenpyrad	46.9	68.0	P/P	30 - 150
2297068	Triclopyr	91.5	101	P/P	40 - 150

Quality Assurance Report

Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296796	Barium	1.62	Spike	P	0 - 20
2296796	Calcium	1.06	Spike	P	0 - 20
2296796	Iron	0.303	Spike	P	0 - 20
2296796	Magnesium	0.124	Spike	P	0 - 20
2296796	Manganese	1.06	Spike	P	0 - 20
2296796	Potassium	0.330	Spike	P	0 - 20
2296796	Sodium	0.290	Spike	P	0 - 20
2296796	Zinc	0.159	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2296796	Aluminum	0.724	Spike	P	0 - 20
2296796	Antimony	0.877	Spike	P	0 - 20
2296796	Arsenic	0.688	Spike	P	0 - 20
2296796	Beryllium	0.528	Spike	P	0 - 20
2296796	Boron	0.635	Spike	P	0 - 20
2296796	Cadmium	1.51	Spike	P	0 - 20
2296796	Chromium	0.320	Spike	P	0 - 20
2296796	Copper	0.0154	Spike	P	0 - 20
2296796	Lead	1.34	Spike	P	0 - 20
2296796	Nickel	0.0112	Spike	P	0 - 20
2296796	Selenium	0.640	Spike	P	0 - 20
2296796	Silver	0.272	Spike	P	0 - 20
2296796	Thallium	0.629	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P408153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297068	Acesulfame K	1.73	Spike	P	0 - 30
2297068	AMPA	1.36	Spike	P	0 - 30
2297068	Endothall	3.97	Spike	P	0 - 30
2297068	Glufosinate	1.28	Spike	P	0 - 30
2297068	Glyphosate	1.36	Spike	P	0 - 30
2297068	Sucralose	0.297	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P408154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297068	2,4-D	22.7	Spike	P	0 - 30
2297068	2,4,5-T	3.35	Spike	P	0 - 30
2297068	Acetaminophen	7.61	Spike	P	0 - 30
2297068	Acetamiprid	0.168	Spike	P	0 - 30
2297068	Afidopyropen	7.22	Spike	P	0 - 30
2297068	Bentazon	21.7	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P408154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297068	Benzovindiflupyr	5.71	Spike	P	0 - 30
2297068	Carbamazepine	9.58	Spike	P	0 - 30
2297068	Clothianidin	2.11	Spike	P	0 - 30
2297068	Dinotefuran	1.82	Spike	P	0 - 30
2297068	Diuron	10.4	Spike	P	0 - 30
2297068	Fenuron	4.57	Spike	P	0 - 30
2297068	Fluridone	0.713	Spike	P	0 - 30
2297068	Hydrocodone	5.99	Spike	P	0 - 30
2297068	Ibuprofen	1.47	Spike	P	0 - 30
2297068	Imazapyr	21.3	Spike	P	0 - 30
2297068	Imidacloprid	6.99	Spike	P	0 - 30
2297068	Linuron	4.26	Spike	P	0 - 30
2297068	Mandestrobin	10.6	Spike	P	0 - 30
2297068	MCPP	4.45	Spike	P	0 - 30
2297068	Naproxen	11.6	Spike	P	0 - 30
2297068	Primidone	7.49	Spike	P	0 - 30
2297068	Pyraclostrobin	11.3	Spike	P	0 - 30
2297068	Silvex	2.44	Spike	P	0 - 30
2297068	Thiamethoxam	4.71	Spike	P	0 - 30
2297068	Tolfenpyrad	36.8	Spike	F	0 - 30
2297068	Triclopyr	10.1	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2297181

Field Sample ID: G2CE0139

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	95.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	105	P	30 - 160
EPA 8321B	Carbamazepine-d10	102	P	30 - 160
EPA 8321B	Diuron-d6	67.5	P	30 - 160
EPA 8321B	Endothall-d6	108	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	98.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	121	P	30 - 160
EPA 8321B	Primidone-d5	93.0	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	30 - 160

Lab Sample ID: 2297182

Field Sample ID: G2CE0119

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	113	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	60.5	P	30 - 160
EPA 8321B	Endothall-d6	109	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	98.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	89.6	P	30 - 160
EPA 8321B	Primidone-d5	76.1	P	30 - 160
EPA 8321B	Sucralose-d6	109	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109710

Included Lab Sample IDs: 2297183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	103	P/P	90 - 110
Calcium	104	103	P/P	90 - 110
Iron	108	107	P/P	90 - 110
Magnesium	106	105	P/P	90 - 110
Manganese	104	104	P/P	90 - 110
Potassium	101	100	P/P	90 - 110
Sodium	104	102	P/P	90 - 110
Zinc	99.9	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109711

Included Lab Sample IDs: 2297183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.2	97.4	P/P	90 - 110
Antimony	97.5	97.5	P/P	90 - 110
Arsenic	97.6	96.7	P/P	90 - 110
Boron	101	98.8	P/P	90 - 110
Cadmium	98.0	99.1	P/P	90 - 110
Chromium	96.2	95.8	P/P	90 - 110
Copper	94.0	93.4	P/P	90 - 110
Lead	92.1	92.9	P/P	90 - 110
Nickel	93.7	93.1	P/P	90 - 110
Selenium	98.4	98.2	P/P	90 - 110
Silver	97.3	98.8	P/P	90 - 110
Thallium	103	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A109742

Included Lab Sample IDs: 2297181, 2297182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	98.2	105	P/P	60 - 160
Glufosinate	101	108	P/P	60 - 160
Glyphosate	99.3	107	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109755

Included Lab Sample IDs: 2297183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	98.6	95.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A109772

Included Lab Sample IDs: 2297181, 2297182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.2	88.7	P/P	50 - 150
2,4,5-T	104	101	P/P	50 - 150
Acetaminophen	101	88.7	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A109772

Included Lab Sample IDs: 2297181, 2297182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetamiprid	104	94.8	P/P	50 - 150
Afidopyropen	113	127	P/P	50 - 150
Bentazon	106	115	P/P	50 - 160
Benzovindiflupyr	98.8	90.3	P/P	50 - 150
Carbamazepine	103	109	P/P	60 - 150
Clothianidin	118	108	P/P	60 - 150
Dinotefuran	105	109	P/P	50 - 150
Diuron	112	109	P/P	60 - 160
Fenuron	103	100	P/P	60 - 150
Fluridone	103	100	P/P	60 - 160
Hydrocodone	112	106	P/P	60 - 150
Ibuprofen	83.4	86.8	P/P	50 - 160
Imazapyr	90.4	95.5	P/P	50 - 150
Imidacloprid	106	104	P/P	60 - 150
Linuron	99.7	96.9	P/P	60 - 150
Mandestrobin	104	114	P/P	50 - 150
MCPP	103	93.8	P/P	50 - 150
Naproxen	101	140	P/P	50 - 160
Primidone	95.2	68.6	P/P	60 - 150
Pyraclostrobin	108	117	P/P	60 - 150
Silvex	130	93.5	P/P	50 - 150
Thiamethoxam	113	108	P/P	50 - 150
Tolfenpyrad	109	134	P/P	60 - 150
Triclopyr	113	113	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A109773

Included Lab Sample IDs: 2297181, 2297182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	105	94.9	P/P	60 - 160
Endothall	86.7	96.9	P/P	60 - 160
Sucralose	84.5	88.6	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	Barium	105	102	99.9	105		1.62
	Calcium	106	101	103			1.06
	Iron	112	109	109	112		0.303
	Magnesium	110	105	105	105		0.124
	Manganese	107	103	102	105		1.06
	Potassium	105	103	102	109		0.330
	Sodium	106	105	104	106		0.290
	Zinc	106	100	99.8	101		0.159
EPA 200.8 Rev. 5.4	Aluminum	101	99.0	98.3	101		0.724
	Antimony	98.8	101	100	101		0.877
	Arsenic	102	99.9	99.1	100		0.688
	Beryllium	99.6	99.0	98.5	101		0.528
	Boron	97.5	99.8	100	102		0.635
	Cadmium	99.2	102	101	102		1.51
	Chromium	100	101	100	103		0.320
	Copper	103	97.7	97.7	99.7		0.0154
	Lead	96.3	94.7	96.0	97.3		1.34
	Nickel	104	97.7	97.7	98.3		0.0112
	Selenium	101	99.5	98.8	101		0.640
	Silver	101	99.3	99.5	101		0.272
	Thallium	107	108	108	110		0.629
EPA 8321B	2,4-D	88.0	79.4	99.7			22.7
	2,4,5-T	102	91.9	88.9			3.35
	Acesulfame K	95.5	70.8	69.6			1.73
	Acetaminophen	93.4	91.9	99.2			7.61
	Acetamiprid	90.0	88.6	88.4			0.168
	Afidopyropen	70.2	75.3	70.0			7.22
	AMPA	99.8	97.9	99.2			1.36
	Bentazon	104	81.0	101			21.7
	Benzovindiflupyr	82.0	80.2	85.0			5.71
	Carbamazepine	93.8	87.2	96.0			9.58
	Clothianidin	84.9	103	105			2.11
	Dinotefuran	104	103	105			1.82
	Diuron	83.3	73.3	81.4			10.4
	Endothall	85.4	98.3	94.5			3.97
	Fenuron	102	98.2	103			4.57
	Fluridone	91.6	87.6	87.0			0.713
	Glufosinate	104	106	105			1.28
	Glyphosate	104	102	104			1.36
	Hydrocodone	97.4	89.3	94.8			5.99
	Ibuprofen	108	80.0	81.2			1.47
	Imazapyr	88.5	78.1	96.7			21.3
	Imidacloprid	101	89.3	95.8			6.99
	Linuron	81.2	95.0	91.0			4.26
	Mandestrobin	93.2	91.0	101			10.6
	MCPP	96.1	95.2	99.5			4.45
	Naproxen	74.8	92.7	82.5			11.6
	Primidone	85.9	116	108			7.49
	Pyraclostrobin	81.2	90.3	101			11.3
	Silvex	92.5	99.0	101			2.44
	Sucralose	86.3	89.8	90.1			0.297
	Thiamethoxam	106	103	108			4.71
	Tolfenpyrad	58.2	46.9	68.0			36.8
	Triclopyr	108	91.5	101			10.1

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	2297183
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2297183
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2297181, 2297182
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2297183

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	01/04/2022	01/05/2022 10:20	Vijayalakshmi Reddy	01/06/2022 23:28	Josef B Mick	2297183
EPA 200.8 Rev. 5.4	01/04/2022	01/05/2022 10:20	Vijayalakshmi Reddy	01/06/2022 16:57	Alexander Thompson	2297183
	01/04/2022	01/05/2022 10:20	Vijayalakshmi Reddy	01/07/2022 12:30	Alexander Thompson	2297183
EPA 8321B	01/04/2022	01/07/2022 10:00	Juyoung Kim	01/07/2022 11:46	Juyoung Kim	2297181
	01/04/2022	01/07/2022 10:00	Juyoung Kim	01/07/2022 11:49	Juyoung Kim	2297181
	01/04/2022	01/07/2022 10:00	Juyoung Kim	01/07/2022 12:00	Juyoung Kim	2297182
	01/04/2022	01/07/2022 10:00	Juyoung Kim	01/07/2022 12:01	Juyoung Kim	2297182
	01/04/2022	01/07/2022 13:00	Hoor Shaik	01/08/2022 07:07	Juyoung Kim	2297181
	01/04/2022	01/07/2022 13:00	Hoor Shaik	01/08/2022 07:41	Juyoung Kim	2297182
	01/04/2022	01/07/2022 13:00	Hoor Shaik	01/10/2022 11:00	Juyoung Kim	2297181
	01/04/2022	01/07/2022 13:00	Hoor Shaik	01/10/2022 11:35	Juyoung Kim	2297182
SM 2340B	01/04/2022			01/06/2022 23:28	Josef B Mick	2297183