

Chemical Analysis Report

SO-DIST-2023-04-04-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **2023 SMP: Later Gator**
Request ID: **RQ-2023-03-06-45**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 12-APR-2023 16:30



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: TELEGRAPH SWAMP SOUTH SITE

Collection Date/Time: 04/03/2023 09:10

Field ID: G3SD0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2397529	EPA 8321B	2,4-D	0.0020	U	ug/L	P428068	
		Acesulfame K	0.10	U	ug/L	P427991	
		2,4,5-T	0.0040	U	ug/L	P428068	
		AMPA	0.15	I	ug/L	P427991	
		Acetaminophen	0.0080	U	ug/L	P428068	
		Acetamiprid	0.0020	U	ug/L	P428068	
		Endothall	0.25	U	ug/L	P427991	
		Glufosinate	0.10	U	ug/L	P427991	
		Glyphosate	0.10	U	ug/L	P427991	
		Afidopyropen	0.0020	U	ug/L	P428068	
		Bentazon	0.0012	I	ug/L	P428068	
		Sucralose	0.010	U	ug/L	P427991	
		Benzovindiflupyr	0.0020	U	ug/L	P428068	
		Carbamazepine	8.0E-04	U	ug/L	P428068	
		Clothianidin	0.0020	U	ug/L	P428068	
		Dinotefuran	0.0020	U	ug/L	P428068	
		Diuron	0.0020	U	ug/L	P428068	
		Fenuron	0.032	U	ug/L	P428068	
		Fluridone	8.0E-04	U	ug/L	P428068	
		Imazapyr	0.15		ug/L	P428068	
		Hydrocodone	0.0020	U	ug/L	P428068	
		Ibuprofen	0.080	U	ug/L	P428068	
		Imidacloprid	0.0020	U	ug/L	P428068	
		Linuron	0.0040	U	ug/L	P428068	
		Mandestrobin	0.0020	U	ug/L	P428068	
		MCPP	0.0028	I	ug/L	P428068	
		Naproxen	0.0080	U	ug/L	P428068	
		Primidone	0.0040	U	ug/L	P428068	
		Pyraclostrobin	0.0020	U	ug/L	P428068	
		Silvex	0.0064	I	ug/L	P428068	
		Thiamethoxam	0.0020	U	ug/L	P428068	
		Tolfenpyrad	0.0020	U	ug/L	P428068	
		Triclopyr	0.0040	U	ug/L	P428068	
2397532	EPA 200.7 Rev. 4.4	Calcium	112		mg/L	P428059	
		Iron	380		ug/L	P428059	
		Magnesium	7.36		mg/L	P428059	
		Potassium	1.0	I	mg/L	P428059	
		Sodium	40.3		mg/L	P428059	
		Strontium	791		ug/L	P428059	
		Tin	3.0	U	ug/L	P428059	
		Titanium	0.75	U	ug/L	P428059	
		Vanadium	2.0	U	ug/L	P428059	
		Zinc	5.0	U	ug/L	P428059	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P428059	

Field ID: G3SD0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2397532	EPA 200.8 Rev. 5.4	Antimony	0.058	I	ug/L	P428059	
		Arsenic	0.73		ug/L	P428059	
		Barium	31.1		ug/L	P428059	
		Beryllium	0.010	U	ug/L	P428059	
		Boron	55.3		ug/L	P428059	
		Cadmium	0.020	U	ug/L	P428059	
		Chromium	0.40	U	ug/L	P428059	
		Cobalt	0.055	I	ug/L	P428059	
		Copper	0.40	U	ug/L	P428059	
		Lead	0.20	U	ug/L	P428059	
		Manganese	16.1		ug/L	P428059	
		Molybdenum	5.71		ug/L	P428059	
		Nickel	0.50	U	ug/L	P428059	
		Selenium	0.20	U	ug/L	P428059	
		Silver	0.010	U	ug/L	P428059	
		Thallium	0.10	U	ug/L	P428059	
	SM 2340 B-2011	Hardness	311		mg/L	P428059	

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

Sample Location: MYRTLE SLOUGH AT SR 31

Collection Date/Time: 04/03/2023 10:25

Field ID: G3SD0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2397531	EPA 8321B	2,4-D	0.0020	U	ug/L	P428068	
		Acesulfame K	0.10	U	ug/L	P427991	
		2,4,5-T	0.0040	U	ug/L	P428068	
		AMPA	1.0		ug/L	P427991	
		Acetaminophen	0.0080	U	ug/L	P428068	
		Acetamiprid	0.0020	U	ug/L	P428068	
		Endothall	0.25	U	ug/L	P427991	
		Glufosinate	0.10	U	ug/L	P427991	
		Glyphosate	1.4		ug/L	P427991	
		Afidopyropen	0.0020	U	ug/L	P428068	
		Bentazon	0.48		ug/L	P428068	
		Sucralose	0.019	I	ug/L	P427991	
		Benzovindiflupyr	0.0020	U	ug/L	P428068	
		Carbamazepine	8.0E-04	U	ug/L	P428068	
		Clothianidin	0.012		ug/L	P428068	
		Dinotefuran	0.0024	I	ug/L	P428068	
		Diuron	0.0028	I	ug/L	P428068	
		Fenuron	0.032	U	ug/L	P428068	
		Fluridone	0.025		ug/L	P428068	
		Imazapyr	0.0040	U	ug/L	P428068	
		Hydrocodone	0.0020	U	ug/L	P428068	
		Ibuprofen	0.080	U	ug/L	P428068	
		Imidacloprid	0.050		ug/L	P428068	
		Linuron	0.0040	U	ug/L	P428068	
		Mandestrobin	0.0020	U	ug/L	P428068	
		MCPP	0.0020	U	ug/L	P428068	
		Naproxen	0.0080	U	ug/L	P428068	
		Primidone	0.0040	U	ug/L	P428068	
		Pyraclostrobin	0.0020	U	ug/L	P428068	
		Silvex	0.0040	U	ug/L	P428068	
		Thiamethoxam	0.0037	I	ug/L	P428068	
		Tolfenpyrad	0.0020	U	ug/L	P428068	
		Triclopyr	0.0040	U	ug/L	P428068	

Ref. Method and Comment:

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

Sample Location: ALLIGATOR NORTH AT JONES LOOP RD

Collection Date/Time: 04/03/2023 11:15

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2397530	EPA 8321B	2,4-D	0.0020	U	ug/L	P428068	
		Acesulfame K	0.17	I	ug/L	P427991	
		2,4,5-T	0.0040	U	ug/L	P428068	
		AMPA	0.10	U	ug/L	P427991	
		Acetaminophen	0.0080	U	ug/L	P428068	
		Acetamiprid	0.0020	U	ug/L	P428068	
		Endothall	0.25	U	ug/L	P427991	
		Glufosinate	0.10	U	ug/L	P427991	
		Glyphosate	0.12	I	ug/L	P427991	
		Afidopyropen	0.0020	U	ug/L	P428068	
		Bentazon	0.0017	I	ug/L	P428068	
		Sucralose	0.60		ug/L	P427991	
		Benzovindiflupyr	0.0020	U	ug/L	P428068	
		Carbamazepine	8.0E-04	U	ug/L	P428068	
		Clothianidin	0.0020	U	ug/L	P428068	
		Dinotefuran	0.0020	U	ug/L	P428068	
		Diuron	0.0020	U	ug/L	P428068	
		Fenuron	0.032	U	ug/L	P428068	
		Fluridone	8.0E-04	U	ug/L	P428068	
		Imazapyr	0.051		ug/L	P428068	
		Hydrocodone	0.0020	U	ug/L	P428068	
		Ibuprofen	0.080	U	ug/L	P428068	
		Imidacloprid	0.0020	U	ug/L	P428068	
		Linuron	0.0040	U	ug/L	P428068	
		Mandestrobin	0.0020	U	ug/L	P428068	
		MCPP	0.0020	U	ug/L	P428068	
		Naproxen	0.0080	U	ug/L	P428068	
		Primidone	0.0040	U	ug/L	P428068	
		Pyraclostrobin	0.0020	U	ug/L	P428068	
		Silvex	0.0040	U	ug/L	P428068	
		Thiamethoxam	0.0020	U	ug/L	P428068	
		Tolfenpyrad	0.0020	U	ug/L	P428068	
		Triclopyr	0.0040	U	ug/L	P428068	
2397533	EPA 200.7 Rev. 4.4	Calcium	65.9		mg/L	P428059	
		Iron	1.79E+03		ug/L	P428059	
		Magnesium	13.8		mg/L	P428059	
		Potassium	4.8		mg/L	P428059	
		Sodium	108		mg/L	P428059	
		Strontium	4.80E+03		ug/L	P428059	
		Tin	3.0	U	ug/L	P428059	
		Titanium	2.1	I	ug/L	P428059	
		Vanadium	4.1	I	ug/L	P428059	
		Zinc	10	I	ug/L	P428059	
	EPA 200.8 Rev. 5.4	Aluminum	415		ug/L	P428059	

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2397533	EPA 200.8 Rev. 5.4	Antimony	0.15	I	ug/L	P428059	
		Arsenic	1.87		ug/L	P428059	
		Barium	38.2		ug/L	P428059	
		Beryllium	0.028	I	ug/L	P428059	
		Boron	70.2		ug/L	P428059	
		Cadmium	0.024	I	ug/L	P428059	
		Chromium	0.95	I	ug/L	P428059	
		Cobalt	0.192		ug/L	P428059	
		Copper	1.82		ug/L	P428059	
		Lead	1.64		ug/L	P428059	
		Manganese	90.1		ug/L	P428059	
		Molybdenum	1.13		ug/L	P428059	
		Nickel	0.83	I	ug/L	P428059	
		Selenium	0.20	U	ug/L	P428059	
		Silver	0.010	U	ug/L	P428059	
		Thallium	0.10	U	ug/L	P428059	
	SM 2340 B-2011	Hardness	221		mg/L	P428059	

Ref. Method and Comment:
 EPA 8321B: MS accuracy and precision for bentazon could not be assessed due to high concentration of parameter in the spiked sample. 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: P428059

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: P428059

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: P427991

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: P428068

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: P428068

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	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P428059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.8		P	85 - 115
Iron	107		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	96.8		P	85 - 115
Sodium	102		P	85 - 115
Strontium	103		P	85 - 115
Tin	103		P	85 - 115
Titanium	105		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	107		P	85 - 115
Arsenic	103		P	85 - 115
Barium	104		P	85 - 115
Beryllium	94.9		P	85 - 115
Boron	102		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	99.9		P	85 - 115
Cobalt	103		P	85 - 115
Copper	103		P	85 - 115
Lead	103		P	85 - 115
Manganese	98.4		P	85 - 115
Molybdenum	102		P	85 - 115
Nickel	103		P	85 - 115
Selenium	101		P	85 - 115
Silver	105		P	85 - 115
Thallium	98.9		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P427991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	96.2		P	40 - 150
AMPA	123		P	40 - 150
Endothall	90.7		P	40 - 150
Glufosinate	99.3		P	40 - 150
Glyphosate	120		P	40 - 150
Sucralose	107		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P428068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	100		P	40 - 150
2,4,5-T	100		P	40 - 150
Acetaminophen	101		P	30 - 150
Acetamiprid	85.2		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P428068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	68.9		P	30 - 150
Bentazon	97.9		P	30 - 150
Benzovindiflupyr	87.5		P	40 - 150
Carbamazepine	87.9		P	40 - 150
Clothianidin	91.5		P	40 - 150
Dinotefuran	98.5		P	40 - 150
Diuron	79.0		P	40 - 150
Fenuron	88.8		P	40 - 150
Fluridone	89.9		P	40 - 150
Hydrocodone	126		P	40 - 150
Ibuprofen	77.0		P	40 - 150
Imazapyr	106		P	40 - 150
Imidacloprid	87.0		P	40 - 150
Linuron	87.9		P	40 - 150
Mandestrobin	91.7		P	40 - 150
MCPP	95.2		P	40 - 150
Naproxen	75.4		P	40 - 150
Primidone	97.7		P	40 - 150
Pyraclostrobin	86.7		P	40 - 150
Silvex	108		P	40 - 150
Thiamethoxam	105		P	40 - 150
Tolfenpyrad	59.7		P	30 - 150
Triclopyr	93.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P428059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2397436	Calcium	108		P	80 - 120
2397436	Iron	102	101	P/P	80 - 120
2397436	Magnesium	97.2	95.9	P/P	80 - 120
2397436	Potassium	92.6	91.8	P/P	80 - 120
2397436	Sodium	96.7	95.6	P/P	80 - 120
2397436	Strontium	97.5	96.5	P/P	80 - 120
2397436	Tin	97.4	96.4	P/P	80 - 120
2397436	Titanium	101	99.5	P/P	80 - 120
2397436	Vanadium	99.4	98.2	P/P	80 - 120
2397436	Zinc	97.4	96.3	P/P	80 - 120
2397913	Calcium	104		P	80 - 120
2397913	Iron	106		P	80 - 120
2397913	Magnesium	102		P	80 - 120
2397913	Potassium	96.5		P	80 - 120
2397913	Sodium	102		P	80 - 120
2397913	Strontium	101		P	80 - 120
2397913	Tin	101		P	80 - 120
2397913	Titanium	104		P	80 - 120
2397913	Vanadium	102		P	80 - 120
2397913	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2397436	Aluminum	101	101	P/P	80 - 120
2397436	Antimony	107	107	P/P	80 - 120
2397436	Arsenic	103	102	P/P	80 - 120
2397436	Barium	102	103	P/P	80 - 120
2397436	Beryllium	95.9	96.3	P/P	80 - 120
2397436	Boron	102	104	P/P	80 - 120
2397436	Cadmium	104	103	P/P	80 - 120
2397436	Chromium	101	100	P/P	80 - 120
2397436	Cobalt	102	101	P/P	80 - 120
2397436	Copper	99.4	99.1	P/P	80 - 120
2397436	Lead	102	103	P/P	80 - 120
2397436	Manganese	98.4	98.7	P/P	80 - 120
2397436	Molybdenum	102	103	P/P	80 - 120
2397436	Nickel	101	99.7	P/P	80 - 120
2397436	Selenium	99.6	101	P/P	80 - 120
2397436	Silver	105	105	P/P	80 - 120
2397436	Thallium	100	103	P/P	80 - 120
2397913	Aluminum	99.4		P	80 - 120
2397913	Antimony	105		P	80 - 120
2397913	Arsenic	98.5		P	80 - 120
2397913	Barium	101		P	80 - 120
2397913	Beryllium	93.5		P	80 - 120
2397913	Boron	107		P	80 - 120
2397913	Cadmium	103		P	80 - 120
2397913	Chromium	96.2		P	80 - 120
2397913	Cobalt	98.4		P	80 - 120
2397913	Copper	97.5		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P428059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2397913	Lead	102		P	80 - 120
2397913	Manganese	97.4		P	80 - 120
2397913	Molybdenum	101		P	80 - 120
2397913	Nickel	97.4		P	80 - 120
2397913	Selenium	97.0		P	80 - 120
2397913	Silver	105		P	80 - 120
2397913	Thallium	97.3		P	80 - 120

Reference Method: EPA 8321B
Batch ID: P427991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2397529	Acesulfame K	75.7	67.8	P/P	40 - 150
2397529	AMPA	70.0	63.3	P/P	40 - 150
2397529	Endothall	91.4	82.8	P/P	40 - 150
2397529	Glufosinate	56.0	62.0	P/P	40 - 150
2397529	Glyphosate	60.9	59.1	P/P	40 - 150
2397529	Sucralose	102	96.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P428068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2397862	2,4-D	104	101	P/P	40 - 150
2397862	2,4,5-T	114	106	P/P	40 - 150
2397862	Acetaminophen	110	113	P/P	30 - 150
2397862	Acetamiprid	91.9	71.5	P/P	40 - 150
2397862	Afidopyropen	84.7	74.6	P/P	30 - 150
2397862	Benzovindiflupyr	78.9	81.6	P/P	40 - 150
2397862	Carbamazepine	77.2	69.8	P/P	40 - 150
2397862	Clothianidin	106	99.7	P/P	40 - 150
2397862	Dinotefuran	120	93.5	P/P	40 - 150
2397862	Diuron	61.7	64.1	P/P	40 - 150
2397862	Fenuron	67.2	57.9	P/P	40 - 150
2397862	Hydrocodone	107	99.1	P/P	40 - 150
2397862	Ibuprofen	69.7	55.7	P/P	40 - 150
2397862	Imidacloprid	125	122	P/P	40 - 150
2397862	Linuron	73.7	73.5	P/P	40 - 150
2397862	Mandestrobin	90.8	89.1	P/P	40 - 150
2397862	MCPP	106	103	P/P	40 - 150
2397862	Naproxen	89.1	83.6	P/P	40 - 150
2397862	Primidone	110	96.5	P/P	40 - 150
2397862	Pyraclostrobin	88.3	80.2	P/P	40 - 150
2397862	Silvex	128	132	P/P	40 - 150
2397862	Thiamethoxam	126	109	P/P	40 - 150
2397862	Tolfenpyrad	60.4	56.5	P/P	30 - 150
2397862	Triclopyr	114	113	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P428059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2397436	Calcium	0.438	Spike	P	0 - 20
2397436	Iron	0.926	Spike	P	0 - 20
2397436	Magnesium	0.756	Spike	P	0 - 20
2397436	Potassium	0.794	Spike	P	0 - 20
2397436	Sodium	0.804	Spike	P	0 - 20
2397436	Strontium	0.947	Spike	P	0 - 20
2397436	Tin	1.00	Spike	P	0 - 20
2397436	Titanium	1.25	Spike	P	0 - 20
2397436	Vanadium	1.20	Spike	P	0 - 20
2397436	Zinc	1.07	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2397436	Aluminum	0.272	Spike	P	0 - 20
2397436	Antimony	0.476	Spike	P	0 - 20
2397436	Arsenic	0.645	Spike	P	0 - 20
2397436	Barium	0.364	Spike	P	0 - 20
2397436	Beryllium	0.420	Spike	P	0 - 20
2397436	Boron	1.94	Spike	P	0 - 20
2397436	Cadmium	0.661	Spike	P	0 - 20
2397436	Chromium	0.978	Spike	P	0 - 20
2397436	Cobalt	0.865	Spike	P	0 - 20
2397436	Copper	0.265	Spike	P	0 - 20
2397436	Lead	0.182	Spike	P	0 - 20
2397436	Manganese	0.291	Spike	P	0 - 20
2397436	Molybdenum	1.12	Spike	P	0 - 20
2397436	Nickel	1.68	Spike	P	0 - 20
2397436	Selenium	1.75	Spike	P	0 - 20
2397436	Silver	0.460	Spike	P	0 - 20
2397436	Thallium	2.72	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P427991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2397529	Acesulfame K	11.1	Spike	P	0 - 30
2397529	AMPA	9.25	Spike	P	0 - 30
2397529	Endothall	9.94	Spike	P	0 - 30
2397529	Glufosinate	10.3	Spike	P	0 - 30
2397529	Glyphosate	2.93	Spike	P	0 - 30
2397529	Sucralose	5.37	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P428068

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: P428068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2397862	2,4-D	2.13	Spike	P	0 - 30
2397862	2,4,5-T	7.01	Spike	P	0 - 30
2397862	Acetaminophen	3.10	Spike	P	0 - 30
2397862	Acetamiprid	25.0	Spike	P	0 - 30
2397862	Afidopyropen	12.6	Spike	P	0 - 30
2397862	Benzovindiflupyr	3.33	Spike	P	0 - 30
2397862	Carbamazepine	8.81	Spike	P	0 - 30
2397862	Clothianidin	5.88	Spike	P	0 - 30
2397862	Dinotefuran	25.1	Spike	P	0 - 30
2397862	Diuron	3.75	Spike	P	0 - 30
2397862	Fenuron	14.9	Spike	P	0 - 30
2397862	Fluridone	5.36	Spike	P	0 - 30
2397862	Hydrocodone	7.69	Spike	P	0 - 30
2397862	Ibuprofen	22.3	Spike	P	0 - 30
2397862	Imazapyr	2.75	Spike	P	0 - 30
2397862	Imidacloprid	2.25	Spike	P	0 - 30
2397862	Linuron	0.306	Spike	P	0 - 30
2397862	Mandestrobin	1.88	Spike	P	0 - 30
2397862	MCPP	2.70	Spike	P	0 - 30
2397862	Naproxen	6.38	Spike	P	0 - 30
2397862	Primidone	12.3	Spike	P	0 - 30
2397862	Pyraclostrobin	9.55	Spike	P	0 - 30
2397862	Silvex	3.52	Spike	P	0 - 30
2397862	Thiamethoxam	14.1	Spike	P	0 - 30
2397862	Tolfenpyrad	6.64	Spike	P	0 - 30
2397862	Triclopyr	1.40	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2397529

Field Sample ID: G3SD0100

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	89.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	52.1	P	30 - 160
EPA 8321B	Diuron-d6	31.0	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	65.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	75.9	P	30 - 160
EPA 8321B	Primidone-d5	79.4	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160

Lab Sample ID: 2397530

Field Sample ID: G2SD0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	121	P	30 - 160
EPA 8321B	Acetaminophen-d4	105	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.1	P	30 - 160
EPA 8321B	Diuron-d6	55.2	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	82.2	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	156	P	30 - 160

Lab Sample ID: 2397531

Field Sample ID: G3SD0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	121	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.7	P	30 - 160
EPA 8321B	Diuron-d6	57.8	P	30 - 160
EPA 8321B	Endothall-d6	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	78.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	86.5	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	133	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118426

Included Lab Sample IDs: 2397532, 2397533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.8	99.3	P/P	90 - 110
Antimony	104	103	P/P	90 - 110
Arsenic	100	98.6	P/P	90 - 110
Barium	99.4	98.3	P/P	90 - 110
Beryllium	95.0	93.3	P/P	90 - 110
Boron	97.6	102	P/P	90 - 110
Cadmium	101	99.7	P/P	90 - 110
Chromium	97.1	95.4	P/P	90 - 110
Cobalt	99.5	96.6	P/P	90 - 110
Copper	98.0	95.8	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Manganese	96.9	96.0	P/P	90 - 110
Molybdenum	99.0	98.2	P/P	90 - 110
Nickel	98.2	95.8	P/P	90 - 110
Selenium	99.6	97.5	P/P	90 - 110
Silver	102	101	P/P	90 - 110
Thallium	106	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A118472

Included Lab Sample IDs: 2397529, 2397530, 2397531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	98.0	94.7	P/P	60 - 160
Sucralose	117	108	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118488

Included Lab Sample IDs: 2397532, 2397533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	105	105	P/P	90 - 110
Iron	106	105	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Potassium	100	99.3	P/P	90 - 110
Sodium	102	100	P/P	90 - 110
Strontium	105	101	P/P	90 - 110
Tin	107	103	P/P	90 - 110
Titanium	106	102	P/P	90 - 110
Vanadium	105	101	P/P	90 - 110
Zinc	108	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A118491

Included Lab Sample IDs: 2397529, 2397530, 2397531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	84.6	83.4	P/P	50 - 150
2,4,5-T	85.4	94.5	P/P	50 - 150
Acetaminophen	94.5	107	P/P	60 - 160
Acetamiprid	103	100	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A118491

Included Lab Sample IDs: 2397529, 2397530, 2397531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Afidopyropen	73.7	69.2	P/P	50 - 150
Bentazon	122	122	P/P	50 - 160
Bentazon	124	126	P/P	50 - 160
Benzovindiflupyr	84.3	93.8	P/P	50 - 150
Carbamazepine	102	101	P/P	60 - 150
Clothianidin	101	95.2	P/P	60 - 150
Dinotefuran	112	114	P/P	50 - 150
Diuron	107	105	P/P	60 - 160
Fenuron	105	97.8	P/P	60 - 150
Fluridone	97.4	93.5	P/P	60 - 160
Hydrocodone	148	138	P/P	60 - 150
Ibuprofen	118	66.6	P/P	50 - 160
Imazapyr	118	110	P/P	50 - 150
Imidacloprid	91.5	94.1	P/P	60 - 150
Linuron	94.6	89.3	P/P	60 - 150
Mandestrobin	99.0	97.6	P/P	50 - 150
MCPP	94.5	86.1	P/P	50 - 150
Naproxen	91.3	78.1	P/P	50 - 160
Primidone	109	109	P/P	60 - 150
Pyraclostrobin	89.2	90.2	P/P	60 - 150
Silvex	76.4	83.8	P/P	50 - 150
Thiamethoxam	123	138	P/P	50 - 150
Tolfenpyrad	82.8	86.2	P/P	60 - 150
Triclopyr	86.8	74.9	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A118497

Included Lab Sample IDs: 2397529, 2397530, 2397531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	117	119	P/P	60 - 160
Endothall	93.1	92.7	P/P	60 - 160
Glufosinate	91.7	101	P/P	60 - 160
Glyphosate	110	111	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
			LCS	SMP	MS	
EPA 200.7 Rev. 4.4	Calcium	99.8	108	104		0.438
	Iron	107	102	101	106	0.926
	Magnesium	103	97.2	95.9	102	0.756
	Potassium	96.8	92.6	91.8	96.5	0.794
	Sodium	102	96.7	95.6	102	0.804
	Strontium	103	97.5	96.5	101	0.947
	Tin	103	97.4	96.4	101	1.00
	Titanium	105	101	99.5	104	1.25
	Vanadium	103	99.4	98.2	102	1.20
	Zinc	104	97.4	96.3	103	1.07
EPA 200.8 Rev. 5.4	Aluminum	102	101	101	99.4	0.272
	Antimony	107	107	107	105	0.476
	Arsenic	103	103	102	98.5	0.645
	Barium	104	102	103	101	0.364
	Beryllium	94.9	95.9	96.3	93.5	0.420
	Boron	102	102	104	107	1.94
	Cadmium	102	104	103	103	0.661
	Chromium	99.9	101	100	96.2	0.978
	Cobalt	103	102	101	98.4	0.865
	Copper	103	99.4	99.1	97.5	0.265
	Lead	103	102	103	102	0.182
	Manganese	98.4	98.4	98.7	97.4	0.291
	Molybdenum	102	102	103	101	1.12
	Nickel	103	101	99.7	97.4	1.68
	Selenium	101	97.0	99.6	101	1.75
	Silver	105	105	105	105	0.460
	Thallium	98.9	97.3	100	103	2.72
	2,4-D	100	104	101		2.13
	2,4,5-T	100	114	106		7.01
	Acesulfame K	96.2	75.7	67.8		11.1
EPA 8321B	Acetaminophen	101	110	113		3.10
	Acetamiprid	85.2	91.9	71.5		25.0
	Afidopyropen	68.9	84.7	74.6		12.6
	AMPA	123	70.0	63.3		9.25
	Bentazon	97.9				
	Benzovindiflupyr	87.5	78.9	81.6		3.33
	Carbamazepine	87.9	77.2	69.8		8.81
	Clothianidin	91.5	106	99.7		5.88
	Dinotefuran	98.5	120	93.5		25.1
	Diuron	79.0	61.7	64.1		3.75
	Endothall	90.7	91.4	82.8		9.94
	Fenuron	88.8	67.2	57.9		14.9
	Fluridone	89.9				5.36
	Glufosinate	99.3	56.0	62.0		10.3
	Glyphosate	120	60.9	59.1		2.93
	Hydrocodone	126	107	99.1		7.69
	Ibuprofen	77.0	69.7	55.7		22.3
	Imazapyr	106				2.75
	Imidacloprid	87.0	125	122		2.25
	Linuron	87.9	73.7	73.5		0.306
	Mandestrobin	91.7	90.8	89.1		1.88
	MCPP	95.2	106	103		2.70
	Naproxen	75.4	89.1	83.6		6.38
	Primidone	97.7	110	96.5		12.3

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS	MS		
EPA 8321B	Pyraclostrobin	86.7	88.3	80.2		9.55
	Silvex	108	128	132		3.52
	Sucralose	107	102	96.9		5.37
	Thiamethoxam	105	126	109		14.1
	Tolfenpyrad	59.7	60.4	56.5		6.64
	Triclopyr	93.8	114	113		1.40

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	2397532, 2397533
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2397532, 2397533
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2397529, 2397530, 2397531
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2397532, 2397533

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	04/04/2023	04/05/2023 11:40	George D Taylor	04/10/2023 19:55	Chase Roberts	2397532
	04/04/2023	04/05/2023 11:40	George D Taylor	04/10/2023 20:11	Chase Roberts	2397533
EPA 200.8 Rev. 5.4	04/04/2023	04/05/2023 11:40	George D Taylor	04/06/2023 18:12	Emily M Philpot	2397532
	04/04/2023	04/05/2023 11:40	George D Taylor	04/06/2023 18:21	Emily M Philpot	2397533
EPA 8321B	04/04/2023	04/07/2023 09:00	Hoor Shaik	04/08/2023 00:08	Juyoung Kim	2397529
	04/04/2023	04/07/2023 09:00	Hoor Shaik	04/08/2023 00:27	Juyoung Kim	2397530
	04/04/2023	04/07/2023 09:00	Hoor Shaik	04/08/2023 00:46	Juyoung Kim	2397531
	04/04/2023	04/07/2023 09:00	Hoor Shaik	04/10/2023 11:56	Juyoung Kim	2397531
	04/04/2023	04/07/2023 09:00	Touraj Touran	04/07/2023 10:48	Manjita Shrestha	2397529
	04/04/2023	04/07/2023 09:00	Touraj Touran	04/07/2023 11:01	Manjita Shrestha	2397530
	04/04/2023	04/07/2023 09:00	Touraj Touran	04/07/2023 11:14	Manjita Shrestha	2397531
	04/04/2023	04/07/2023 09:00	Touraj Touran	04/09/2023 07:44	Manjita Shrestha	2397529
	04/04/2023	04/07/2023 09:00	Touraj Touran	04/09/2023 07:58	Manjita Shrestha	2397530
	04/04/2023	04/07/2023 09:00	Touraj Touran	04/09/2023 08:12	Manjita Shrestha	2397531
SM 2340 B-2011	04/04/2023			04/10/2023 19:55	Chase Roberts	2397532
	04/04/2023			04/10/2023 20:11	Chase Roberts	2397533