Chemical Analysis Report

SO-DIST-2023-05-10-02

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

Event Description: **2023 SMP: Later Gator**
Request ID: **RQ-2023-05-01-46**
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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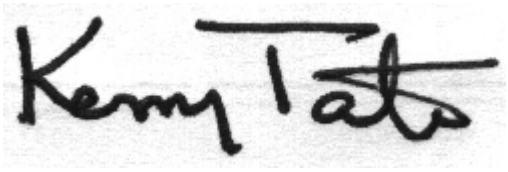
Date Certified: 26-MAY-2023 10:43



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: 05/09/2023 09:00**

Field ID: G3SD0100 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2408586	EPA 8321B	2,4-D	0.0020	U	ug/L	P429749	
		Acesulfame K	0.10	U	ug/L	P429732	
		2,4,5-T	0.0040	U	ug/L	P429749	
		AMPA	0.20	I	ug/L	P429732	
		Acetaminophen	0.0080	U	ug/L	P429749	
		Acetamiprid	0.0020	U	ug/L	P429749	
		Endothall	0.25	U	ug/L	P429732	
		Glufosinate	0.10	U	ug/L	P429732	
		Glyphosate	0.10	U	ug/L	P429732	
		Afidopyropen	0.0020	U	ug/L	P429749	
		Bentazon	0.0086		ug/L	P429749	
		Sucralose	0.010	U	ug/L	P429732	
		Benzovindiflupyr	0.0020	U	ug/L	P429749	
		Carbamazepine	8.0E-04	U	ug/L	P429749	
		Clothianidin	0.0020	U	ug/L	P429749	
		Dinotefuran	0.0020	U	ug/L	P429749	
		Diuron	0.0020	U	ug/L	P429749	
		Fenuron	0.032	U	ug/L	P429749	
		Fluridone	8.0E-04	U	ug/L	P429749	
		Imazapyr	0.53		ug/L	P429749	
		Hydrocodone	0.0020	U	ug/L	P429749	
		Ibuprofen	0.080	U	ug/L	P429749	
		Imidacloprid	0.0020	U	ug/L	P429749	
		Linuron	0.0040	U	ug/L	P429749	
		Mandestrobin	0.0020	U	ug/L	P429749	
		MCPP	0.0069	I	ug/L	P429749	
		Naproxen	0.0080	U	ug/L	P429749	
		Primidone	0.0040	U	ug/L	P429749	
		Pyraclostrobin	0.0020	U	ug/L	P429749	
		Silvex	0.0040	U	ug/L	P429749	
		Thiamethoxam	0.0020	U	ug/L	P429749	
		Tolfenpyrad	0.0020	U	ug/L	P429749	
		Triclopyr	0.0040	U	ug/L	P429749	
2408589	EPA 200.7 Rev. 4.4	Calcium	40.8		mg/L	P429734	
		Iron	2.00E+03		ug/L	P429734	
		Magnesium	7.96		mg/L	P429734	
		Potassium	7.2		mg/L	P429734	
		Sodium	44.5		mg/L	P429734	
		Strontium	2.31E+03		ug/L	P429734	
		Tin	3.0	U	ug/L	P429734	
		Titanium	1.1	I	ug/L	P429734	
		Vanadium	4.0	I	ug/L	P429734	
		Zinc	8.2	I	ug/L	P429734	
	EPA 200.8 Rev. 5.4	Aluminum	221		ug/L	P429734	

Field ID: G3SD0100 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2408589	EPA 200.8 Rev. 5.4	Antimony	0.12	I	ug/L	P429734	
		Arsenic	2.07		ug/L	P429734	
		Barium	25.5		ug/L	P429734	
		Beryllium	0.026	I	ug/L	P429734	
		Boron	55.4		ug/L	P429734	
		Cadmium	0.020	U	ug/L	P429734	
		Chromium	1.6	I	ug/L	P429734	
		Cobalt	0.234		ug/L	P429734	
		Copper	1.17		ug/L	P429734	
		Lead	1.08		ug/L	P429734	
		Manganese	45.8		ug/L	P429734	
		Molybdenum	1.53		ug/L	P429734	
		Nickel	0.62	I	ug/L	P429734	
		Selenium	0.34	I	ug/L	P429734	
		Silver	0.010	U	ug/L	P429734	
		Thallium	0.10	U	ug/L	P429734	
	SM 2340 B-2011	Hardness	135		mg/L	P429734	

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

Sample Location: Myrtle Slough at SR 31 **Collection Date/Time: 05/09/2023 09:50**

Field ID: G3SD0097 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2408588	EPA 8321B	2,4-D	0.0023	I	ug/L	P429749	
		Acesulfame K	0.10	U	ug/L	P429733	
		2,4,5-T	0.0040	U	ug/L	P429749	
		AMPA	3.6		ug/L	P429733	
		Acetaminophen	0.0080	U	ug/L	P429749	
		Acetamiprid	0.0020	U	ug/L	P429749	
		Endothall	0.25	U	ug/L	P429733	
		Glufosinate	0.10	U	ug/L	P429733	
		Glyphosate	9.4		ug/L	P429733	
		Afidopyropen	0.0020	U	ug/L	P429749	
		Bentazon	0.25		ug/L	P429749	
		Sucralose	0.010	U	ug/L	P429733	
		Benzovindiflupyr	0.0020	U	ug/L	P429749	
		Carbamazepine	8.0E-04	U	ug/L	P429749	
		Clothianidin	0.015		ug/L	P429749	
		Dinotefuran	0.0020	U	ug/L	P429749	
		Diuron	0.0053	I	ug/L	P429749	
		Fenuron	0.032	U	ug/L	P429749	
		Fluridone	0.011		ug/L	P429749	
		Imazapyr	0.0040	U	ug/L	P429749	
		Hydrocodone	0.0020	U	ug/L	P429749	
		Ibuprofen	0.080	U	ug/L	P429749	
		Imidacloprid	0.086		ug/L	P429749	
		Linuron	0.0040	U	ug/L	P429749	
		Mandestrobin	0.0020	U	ug/L	P429749	
		MCPP	0.0020	U	ug/L	P429749	
		Naproxen	0.0080	U	ug/L	P429749	
		Primidone	0.0040	U	ug/L	P429749	
		Pyraclostrobin	0.0020	U	ug/L	P429749	
		Silvex	0.0040	U	ug/L	P429749	
		Thiamethoxam	0.0039	I	ug/L	P429749	
		Tolfenpyrad	0.0020	U	ug/L	P429749	
		Triclopyr	0.0040	U	ug/L	P429749	

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

Sample Location: Alligator North at Jones Loop Rd **Collection Date/Time: 05/09/2023 10:45**

Field ID: G2SD0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2408587	EPA 8321B	2,4-D	0.0028	I	ug/L	P429749	
		Acesulfame K	0.14	I	ug/L	P429733	
		2,4,5-T	0.0040	U	ug/L	P429749	
		AMPA	0.10	U	ug/L	P429733	
		Acetaminophen	0.0080	U	ug/L	P429749	
		Acetamiprid	0.0020	U	ug/L	P429749	
		Endothall	0.25	U	ug/L	P429733	
		Glufosinate	0.10	U	ug/L	P429733	
		Glyphosate	0.10	U	ug/L	P429733	
		Afidopyropen	0.0020	U	ug/L	P429749	
		Bentazon	0.0025	I	ug/L	P429749	
		Sucralose	0.35		ug/L	P429733	
		Benzovindiflupyr	0.0020	U	ug/L	P429749	
		Carbamazepine	0.0014	I	ug/L	P429749	
		Clothianidin	0.0020	U	ug/L	P429749	
		Dinotefuran	0.0020	U	ug/L	P429749	
		Diuron	0.0020	U	ug/L	P429749	
		Fenuron	0.032	U	ug/L	P429749	
		Fluridone	8.0E-04	U	ug/L	P429749	
		Imazapyr	0.044		ug/L	P429749	
		Hydrocodone	0.0020	U	ug/L	P429749	
		Ibuprofen	0.080	U	ug/L	P429749	
		Imidacloprid	0.0020	U	ug/L	P429749	
		Linuron	0.0040	U	ug/L	P429749	
		Mandestrobin	0.0020	U	ug/L	P429749	
		MCPP	0.0020	U	ug/L	P429749	
		Naproxen	0.0080	U	ug/L	P429749	
		Primidone	0.0040	U	ug/L	P429749	
		Pyraclostrobin	0.0020	U	ug/L	P429749	
		Silvex	0.0040	U	ug/L	P429749	
		Thiamethoxam	0.0020	U	ug/L	P429749	
		Tolfenpyrad	0.0020	U	ug/L	P429749	
		Triclopyr	0.0040	U	ug/L	P429749	
2408590	EPA 200.7 Rev. 4.4	Calcium	102		mg/L	P429734	
		Iron	300		ug/L	P429734	
		Magnesium	6.82		mg/L	P429734	
		Potassium	0.85	I	mg/L	P429734	
		Sodium	36.6		mg/L	P429734	
		Strontium	723		ug/L	P429734	
		Tin	3.0	U	ug/L	P429734	
		Titanium	0.75	U	ug/L	P429734	
		Vanadium	2.0	U	ug/L	P429734	
		Zinc	5.0	U	ug/L	P429734	
	EPA 200.8 Rev. 5.4	Aluminum	6.4	I	ug/L	P429734	

Field ID: G2SD0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2408590	EPA 200.8 Rev. 5.4	Antimony	0.061	I	ug/L	P429734	
		Arsenic	0.69		ug/L	P429734	
		Barium	32.1		ug/L	P429734	
		Beryllium	0.010	U	ug/L	P429734	
		Boron	47.9		ug/L	P429734	
		Cadmium	0.020	U	ug/L	P429734	
		Chromium	0.40	U	ug/L	P429734	
		Cobalt	0.054	I	ug/L	P429734	
		Copper	0.40	U	ug/L	P429734	
		Lead	0.20	U	ug/L	P429734	
		Manganese	11.2		ug/L	P429734	
		Molybdenum	4.67		ug/L	P429734	
		Nickel	0.50	U	ug/L	P429734	
		Selenium	0.20	U	ug/L	P429734	
		Silver	0.010	U	ug/L	P429734	
		Thallium	0.10	U	ug/L	P429734	
	SM 2340 B-2011	Hardness	284		mg/L	P429734	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P429734

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: P429734

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: P429732

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: P429733

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P429733

Component	Result	Code	Units
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P429749

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
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: P429734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	102		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	100		P	85 - 115
Sodium	105		P	85 - 115
Strontium	104		P	85 - 115
Tin	104		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	108		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	99.7		P	85 - 115
Barium	102		P	85 - 115
Beryllium	98.1		P	85 - 115
Boron	103		P	85 - 115
Cadmium	99.8		P	85 - 115
Chromium	98.2		P	85 - 115
Cobalt	102		P	85 - 115
Copper	98.1		P	85 - 115
Lead	102		P	85 - 115
Manganese	99.5		P	85 - 115
Molybdenum	99.1		P	85 - 115
Nickel	98.7		P	85 - 115
Selenium	99.2		P	85 - 115
Silver	107		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 8321B
Batch ID: P429732

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	102		P	40 - 150
AMPA	112		P	40 - 150
Endothall	80.5		P	40 - 150
Glufosinate	97.6		P	40 - 150
Glyphosate	121		P	40 - 150
Sucralose	87.9		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P429733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	99.3		P	40 - 150
AMPA	104		P	40 - 150
Endothall	80.0		P	40 - 150
Glufosinate	105		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P429733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	122		P	40 - 150
Sucralose	96.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P429749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	85.1		P	40 - 150
2,4,5-T	90.2		P	40 - 150
Acetaminophen	80.4		P	30 - 150
Acetamiprid	82.4		P	40 - 150
Afidopyropen	70.1		P	30 - 150
Bentazon	136		P	30 - 150
Benzovindiflupyr	89.8		P	40 - 150
Carbamazepine	88.3		P	40 - 150
Clothianidin	87.7		P	40 - 150
Dinotefuran	95.4		P	40 - 150
Diuron	82.1		P	40 - 150
Fenuron	88.7		P	40 - 150
Fluridone	90.8		P	40 - 150
Hydrocodone	91.3		P	40 - 150
Ibuprofen	75.1		P	40 - 150
Imazapyr	87.8		P	40 - 150
Imidacloprid	86.6		P	40 - 150
Linuron	80.8		P	40 - 150
Mandestrobin	91.4		P	40 - 150
MCPP	90.8		P	40 - 150
Naproxen	81.6		P	40 - 150
Primidone	83.5		P	40 - 150
Pyraclostrobin	82.1		P	40 - 150
Silvex	105		P	40 - 150
Thiamethoxam	86.1		P	40 - 150
Tolfenpyrad	60.7		P	30 - 150
Triclopyr	83.0		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P429734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408260	Calcium	100	103	P/P	80 - 120
2408260	Iron	102	104	P/P	80 - 120
2408260	Magnesium	101	103	P/P	80 - 120
2408260	Potassium	101	102	P/P	80 - 120
2408260	Sodium	106	106	P/P	80 - 120
2408260	Strontium	104	104	P/P	80 - 120
2408260	Tin	102	103	P/P	80 - 120
2408260	Titanium	103	102	P/P	80 - 120
2408260	Vanadium	103	103	P/P	80 - 120
2408260	Zinc	108	107	P/P	80 - 120
2408656	Calcium	102		P	80 - 120
2408656	Iron	105		P	80 - 120
2408656	Magnesium	101		P	80 - 120
2408656	Potassium	103		P	80 - 120
2408656	Sodium	106		P	80 - 120
2408656	Strontium	105		P	80 - 120
2408656	Tin	101		P	80 - 120
2408656	Titanium	102		P	80 - 120
2408656	Vanadium	104		P	80 - 120
2408656	Zinc	109		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408260	Aluminum	101	101	P/P	80 - 120
2408260	Antimony	103	103	P/P	80 - 120
2408260	Arsenic	100	101	P/P	80 - 120
2408260	Barium	104	104	P/P	80 - 120
2408260	Beryllium	95.5	96.7	P/P	80 - 120
2408260	Boron	103	104	P/P	80 - 120
2408260	Cadmium	102	103	P/P	80 - 120
2408260	Chromium	100	100	P/P	80 - 120
2408260	Cobalt	103	104	P/P	80 - 120
2408260	Copper	100	100	P/P	80 - 120
2408260	Lead	104	105	P/P	80 - 120
2408260	Manganese	102	102	P/P	80 - 120
2408260	Molybdenum	99.5	101	P/P	80 - 120
2408260	Nickel	99.4	99.3	P/P	80 - 120
2408260	Selenium	101	101	P/P	80 - 120
2408260	Silver	104	104	P/P	80 - 120
2408260	Thallium	102	105	P/P	80 - 120
2408656	Aluminum	100		P	80 - 120
2408656	Antimony	104		P	80 - 120
2408656	Arsenic	103		P	80 - 120
2408656	Barium	104		P	80 - 120
2408656	Beryllium	98.2		P	80 - 120
2408656	Boron	102		P	80 - 120
2408656	Cadmium	101		P	80 - 120
2408656	Chromium	97.2		P	80 - 120
2408656	Cobalt	101		P	80 - 120
2408656	Copper	99.1		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408656	Lead	104		P	80 - 120
2408656	Manganese	98.7		P	80 - 120
2408656	Molybdenum	102		P	80 - 120
2408656	Nickel	98.5		P	80 - 120
2408656	Selenium	102		P	80 - 120
2408656	Silver	102		P	80 - 120
2408656	Thallium	103		P	80 - 120

Reference Method: EPA 8321B
Batch ID: P429732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407444	Acesulfame K	136	142	P/P	40 - 150
2407444	AMPA	91.5	87.2	P/P	40 - 150
2407444	Endothall	83.9	80.7	P/P	40 - 150
2407444	Glufosinate	97.6	95.3	P/P	40 - 150
2407444	Glyphosate	123	117	P/P	40 - 150
2407444	Sucralose	97.7	83.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P429733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408587	Acesulfame K	76.9	77.8	P/P	40 - 150
2408587	AMPA	71.7	72.7	P/P	40 - 150
2408587	Endothall	73.2	75.2	P/P	40 - 150
2408587	Glufosinate	68.2	72.2	P/P	40 - 150
2408587	Glyphosate	79.6	67.2	P/P	40 - 150
2408587	Sucralose	81.1	89.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P429749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408093	2,4-D	116	102	P/P	40 - 150
2408093	2,4,5-T	115	113	P/P	40 - 150
2408093	Acetaminophen	96.3	95.4	P/P	30 - 150
2408093	Acetamiprid	72.8	80.5	P/P	40 - 150
2408093	Afidopyropen	73.9	64.4	P/P	30 - 150
2408093	Benzovindiflupyr	91.0	89.7	P/P	40 - 150
2408093	Carbamazepine	83.9	86.2	P/P	40 - 150
2408093	Clothianidin	112	111	P/P	40 - 150
2408093	Dinotefuran	108	109	P/P	40 - 150
2408093	Diuron	69.1	69.9	P/P	40 - 150
2408093	Fenuron	71.8	71.5	P/P	40 - 150
2408093	Hydrocodone	85.5	83.3	P/P	40 - 150
2408093	Ibuprofen	73.2	68.8	P/P	40 - 150
2408093	Imidacloprid	136	137	P/P	40 - 150
2408093	Linuron	71.5	75.4	P/P	40 - 150
2408093	Mandestrobin	80.4	87.2	P/P	40 - 150
2408093	MCPP	122	132	P/P	40 - 150
2408093	Naproxen	106	98.5	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P429749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2408093	Primidone	102	89.8	P/P	40 - 150
2408093	Pyraclostrobin	85.1	84.7	P/P	40 - 150
2408093	Silvex	131	142	P/P	40 - 150
2408093	Thiamethoxam	122	119	P/P	40 - 150
2408093	Tolfenpyrad	57.4	58.9	P/P	30 - 150
2408093	Triclopyr	103	103	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P429734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2408260	Calcium	1.53	Spike	P	0 - 20
2408260	Iron	1.69	Spike	P	0 - 20
2408260	Magnesium	1.53	Spike	P	0 - 20
2408260	Potassium	0.862	Spike	P	0 - 20
2408260	Sodium	0.0486	Spike	P	0 - 20
2408260	Strontium	0.373	Spike	P	0 - 20
2408260	Tin	0.887	Spike	P	0 - 20
2408260	Titanium	1.30	Spike	P	0 - 20
2408260	Vanadium	0.396	Spike	P	0 - 20
2408260	Zinc	0.980	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2408260	Aluminum	0.515	Spike	P	0 - 20
2408260	Antimony	0.416	Spike	P	0 - 20
2408260	Arsenic	0.531	Spike	P	0 - 20
2408260	Barium	0.346	Spike	P	0 - 20
2408260	Beryllium	1.06	Spike	P	0 - 20
2408260	Boron	1.40	Spike	P	0 - 20
2408260	Cadmium	1.62	Spike	P	0 - 20
2408260	Chromium	0.179	Spike	P	0 - 20
2408260	Cobalt	0.349	Spike	P	0 - 20
2408260	Copper	0.138	Spike	P	0 - 20
2408260	Lead	0.962	Spike	P	0 - 20
2408260	Manganese	0.309	Spike	P	0 - 20
2408260	Molybdenum	1.42	Spike	P	0 - 20
2408260	Nickel	0.0693	Spike	P	0 - 20
2408260	Selenium	0.488	Spike	P	0 - 20
2408260	Silver	0.0980	Spike	P	0 - 20
2408260	Thallium	3.07	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P429732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407444	Acesulfame K	3.91	Spike	P	0 - 30
2407444	AMPA	4.83	Spike	P	0 - 30
2407444	Endothall	3.84	Spike	P	0 - 30
2407444	Glufosinate	2.42	Spike	P	0 - 30
2407444	Glyphosate	5.08	Spike	P	0 - 30
2407444	Sucralose	13.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P429733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P429733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2408587	Acesulfame K	1.13	Spike	P	0 - 30
2408587	AMPA	1.43	Spike	P	0 - 30
2408587	Endothall	2.76	Spike	P	0 - 30
2408587	Glufosinate	5.74	Spike	P	0 - 30
2408587	Glyphosate	16.8	Spike	P	0 - 30
2408587	Sucralose	8.35	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P429749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2408093	2,4-D	11.5	Spike	P	0 - 30
2408093	2,4,5-T	2.08	Spike	P	0 - 30
2408093	Acetaminophen	0.892	Spike	P	0 - 30
2408093	Acetamiprid	10.1	Spike	P	0 - 30
2408093	Afidopyropen	13.8	Spike	P	0 - 30
2408093	Bentazon	20.8	Spike	P	0 - 30
2408093	Benzovindiflupyr	1.37	Spike	P	0 - 30
2408093	Carbamazepine	2.49	Spike	P	0 - 30
2408093	Clothianidin	1.28	Spike	P	0 - 30
2408093	Dinotefuran	1.20	Spike	P	0 - 30
2408093	Diuron	0.757	Spike	P	0 - 30
2408093	Fenuron	0.429	Spike	P	0 - 30
2408093	Fluridone	2.44	Spike	P	0 - 30
2408093	Hydrocodone	2.58	Spike	P	0 - 30
2408093	Ibuprofen	6.25	Spike	P	0 - 30
2408093	Imazapyr	1.43	Spike	P	0 - 30
2408093	Imidacloprid	0.599	Spike	P	0 - 30
2408093	Linuron	5.30	Spike	P	0 - 30
2408093	Mandestrobin	8.09	Spike	P	0 - 30
2408093	MCPP	7.65	Spike	P	0 - 30
2408093	Naproxen	7.29	Spike	P	0 - 30
2408093	Primidone	12.4	Spike	P	0 - 30
2408093	Pyraclostrobin	0.495	Spike	P	0 - 30
2408093	Silvex	7.88	Spike	P	0 - 30
2408093	Thiamethoxam	2.85	Spike	P	0 - 30
2408093	Tolfenpyrad	2.53	Spike	P	0 - 30
2408093	Triclopyr	0.246	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2408586
Field Sample ID: G3SD0100

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	88.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	69.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	52.1	P	30 - 160
EPA 8321B	Diuron-d6	38.6	P	30 - 160
EPA 8321B	Endothall-d6	106	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	86.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.0	P	30 - 160
EPA 8321B	Primidone-d5	59.6	P	30 - 160
EPA 8321B	Sucralose-d6	132	P	30 - 160

Lab Sample ID: 2408587
Field Sample ID: G2SD0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	116	P	30 - 160
EPA 8321B	Acetaminophen-d4	82.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.1	P	30 - 160
EPA 8321B	Diuron-d6	64.9	P	30 - 160
EPA 8321B	Endothall-d6	89.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	76.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	68.6	P	30 - 160
EPA 8321B	Primidone-d5	78.6	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Lab Sample ID: 2408588
Field Sample ID: G3SD0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.6	P	30 - 160
EPA 8321B	Diuron-d6	58.5	P	30 - 160
EPA 8321B	Endothall-d6	90.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	73.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.7	P	30 - 160
EPA 8321B	Primidone-d5	78.8	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A119153
Included Lab Sample IDs: 2408589, 2408590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	99.1	P/P	90 - 110
Antimony	101	101	P/P	90 - 110
Arsenic	99.4	99.3	P/P	90 - 110
Barium	100	100	P/P	90 - 110
Beryllium	98.4	98.7	P/P	90 - 110
Boron	101	97.6	P/P	90 - 110
Cadmium	99.7	101	P/P	90 - 110
Chromium	98.8	99.4	P/P	90 - 110
Cobalt	102	102	P/P	90 - 110
Copper	96.4	97.3	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Manganese	100	101	P/P	90 - 110
Molybdenum	98.4	99.3	P/P	90 - 110
Nickel	98.7	98.2	P/P	90 - 110
Selenium	101	100	P/P	90 - 110
Thallium	102	99.8	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A119173
Included Lab Sample IDs: 2408586, 2408587, 2408588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	89.8	89.9	P/P	50 - 150
2,4,5-T	107	91.0	P/P	50 - 150
Acetaminophen	89.7	87.8	P/P	60 - 160
Acetamiprid	108	111	P/P	50 - 150
Afidopyropen	79.4	99.2	P/P	50 - 150
Bentazon	119	112	P/P	50 - 160
Bentazon	127	121	P/P	50 - 160
Benzovindiflupyr	108	101	P/P	50 - 150
Carbamazepine	110	103	P/P	60 - 150
Clothianidin	104	96.4	P/P	60 - 150
Dinotefuran	107	111	P/P	50 - 150
Diuron	110	114	P/P	60 - 160
Fenuron	109	105	P/P	60 - 150
Fluridone	110	106	P/P	60 - 160
Hydrocodone	108	111	P/P	60 - 150
Ibuprofen	110	96.6	P/P	50 - 160
Imazapyr	94.1	94.3	P/P	50 - 150
Imidacloprid	101	99.6	P/P	60 - 150
Linuron	109	103	P/P	60 - 150
Mandestrobin	109	105	P/P	50 - 150
MCPP	107	97.1	P/P	50 - 150
Naproxen	102	128	P/P	50 - 160
Primidone	91.4	86.2	P/P	60 - 150
Pyraclostrobin	107	108	P/P	60 - 150
Silvex	104	98.1	P/P	50 - 150
Thiamethoxam	103	106	P/P	50 - 150
Tolfenpyrad	98.4	98.4	P/P	60 - 150
Triclopyr	102	84.6	P/P	50 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A119177
Included Lab Sample IDs: 2408589, 2408590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.4	98.2	P/P	90 - 110
Silver	101	100	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A119190
Included Lab Sample IDs: 2408586, 2408587, 2408588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	110	115	P/P	60 - 160
Endothall	80.8	82.5	P/P	60 - 160
Glufosinate	97.0	105	P/P	60 - 160
Glyphosate	108	127	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A119191
Included Lab Sample IDs: 2408586, 2408587, 2408588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	102	101	P/P	60 - 160
Sucralose	110	115	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A119207
Included Lab Sample IDs: 2408589, 2408590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Potassium	101	102	P/P	90 - 110
Sodium	106	106	P/P	90 - 110
Strontium	103	103	P/P	90 - 110
Tin	100	101	P/P	90 - 110
Titanium	100	99.7	P/P	90 - 110
Vanadium	100	99.9	P/P	90 - 110
Zinc	104	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A119269
Included Lab Sample IDs: 2408590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tin	101	102	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		
						LCS	SMP	MS
EPA 200.7 Rev. 4.4	Calcium	101	100	103	102			1.53
	Iron	102	102	104	105			1.69
	Magnesium	101	101	103	101			1.53
	Potassium	100	101	102	103			0.862
	Sodium	105	106	106	106			0.0486
	Strontium	104	104	104	105			0.373
	Tin	104	102	103	101			0.887
	Titanium	101	103	102	102			1.30
	Vanadium	103	103	103	104			0.396
	Zinc	108	108	107	109			0.980
EPA 200.8 Rev. 5.4	Aluminum	101	101	101	100			0.515
	Antimony	103	103	103	104			0.416
	Arsenic	99.7	100	101	103			0.531
	Barium	102	104	104	104			0.346
	Beryllium	98.1	95.5	96.7	98.2			1.06
	Boron	103	103	104	102			1.40
	Cadmium	99.8	102	103	101			1.62
	Chromium	98.2	100	100	97.2			0.179
	Cobalt	102	103	104	101			0.349
	Copper	98.1	100	100	99.1			0.138
	Lead	102	104	105	104			0.962
	Manganese	99.5	102	102	98.7			0.309
	Molybdenum	99.1	99.5	101	102			1.42
	Nickel	98.7	99.4	99.3	98.5			0.0693
	Selenium	99.2	101	101	102			0.488
	Silver	107	104	104	102			0.0980
	Thallium	100	102	105	103			3.07
EPA 8321B	2,4-D	85.1	116	102				11.5
	2,4,5-T	90.2	115	113				2.08
	Acesulfame K	102	136	142				3.91
	Acesulfame K	99.3	76.9	77.8				1.13
	Acetaminophen	80.4	96.3	95.4				0.892
	Acetamiprid	82.4	72.8	80.5				10.1
	Afidopyropen	70.1	73.9	64.4				13.8
	AMPA	112	91.5	87.2				4.83
	AMPA	104	71.7	72.7				1.43
	Bentazon	136						20.8
	Benzovindiflupyr	89.8	91.0	89.7				1.37
	Carbamazepine	88.3	83.9	86.2				2.49
	Clothianidin	87.7	112	111				1.28
	Dinotefuran	95.4	108	109				1.20
	Diuron	82.1	69.1	69.9				0.757
	Endothall	80.5	83.9	80.7				3.84
	Endothall	80.0	73.2	75.2				2.76
	Fenuron	88.7	71.8	71.5				0.429
	Fluridone	90.8						2.44
	Glufosinate	97.6	97.6	95.3				2.42
	Glufosinate	105	68.2	72.2				5.74
	Glyphosate	121	123	117				5.08
	Glyphosate	122	79.6	67.2				16.8
	Hydrocodone	91.3	85.5	83.3				2.58
	Ibuprofen	75.1	73.2	68.8				6.25
	Imazapyr	87.8						1.43
	Imidacloprid	86.6	136	137				0.599

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Linuron	80.8	71.5	75.4			5.30
	Mandestrobin	91.4	80.4	87.2			8.09
	MCPP	90.8	122	132			7.65
	Naproxen	81.6	106	98.5			7.29
	Primidone	83.5	102	89.8			12.4
	Pyraclostrobin	82.1	85.1	84.7			0.495
	Silvex	105	131	142			7.88
	Sucralose	87.9	97.7	83.9			13.6
	Sucralose	96.1	81.1	89.4			8.35
	Thiamethoxam	86.1	122	119			2.85
	Tolfenpyrad	60.7	57.4	58.9			2.53
	Triclopyr	83.0	103	103			0.246

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2408589, 2408590
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2408589, 2408590
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2408586, 2408587, 2408588
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2408589, 2408590

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	05/10/2023	05/11/2023 13:35	George D Taylor	05/16/2023 23:03	McKinley C Carter	2408589
	05/10/2023	05/11/2023 13:35	George D Taylor	05/16/2023 23:11	McKinley C Carter	2408590
	05/10/2023	05/11/2023 13:35	George D Taylor	05/18/2023 18:21	McKinley C Carter	2408590
EPA 200.8 Rev. 5.4	05/10/2023	05/11/2023 13:35	George D Taylor	05/12/2023 20:24	Conrad Hartmann	2408589
	05/10/2023	05/11/2023 13:35	George D Taylor	05/12/2023 20:33	Conrad Hartmann	2408590
	05/10/2023	05/11/2023 13:35	George D Taylor	05/15/2023 16:51	Conrad Hartmann	2408589
	05/10/2023	05/11/2023 13:35	George D Taylor	05/15/2023 16:57	Conrad Hartmann	2408590
EPA 8321B	05/10/2023	05/12/2023 09:00	Hoor Shaik	05/13/2023 00:27	Juyoung Kim	2408586
	05/10/2023	05/12/2023 09:00	Hoor Shaik	05/13/2023 00:46	Juyoung Kim	2408587
	05/10/2023	05/12/2023 09:00	Hoor Shaik	05/13/2023 01:05	Juyoung Kim	2408588
	05/10/2023	05/12/2023 09:00	Hoor Shaik	05/15/2023 13:00	Juyoung Kim	2408588
	05/10/2023	05/12/2023 09:00	Manjita Shrestha	05/12/2023 15:21	Manjita Shrestha	2408586
	05/10/2023	05/12/2023 09:00	Manjita Shrestha	05/13/2023 19:09	Manjita Shrestha	2408586
	05/10/2023	05/12/2023 12:00	Manjita Shrestha	05/12/2023 16:27	Manjita Shrestha	2408587
	05/10/2023	05/12/2023 12:00	Manjita Shrestha	05/12/2023 16:40	Manjita Shrestha	2408588
	05/10/2023	05/12/2023 12:00	Manjita Shrestha	05/13/2023 20:20	Manjita Shrestha	2408587
	05/10/2023	05/12/2023 12:00	Manjita Shrestha	05/13/2023 20:34	Manjita Shrestha	2408588
SM 2340 B-2011	05/10/2023			05/16/2023 23:03	McKinley C Carter	2408589
	05/10/2023			05/16/2023 23:11	McKinley C Carter	2408590