

Chemical Analysis Report

SO-DIST-2023-10-12-03

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

Event Description: **2023 SMP: Later Gator**
Request ID: **RQ-2023-10-09-63**
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: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 26-OCT-2023 09:49



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: 10/11/2023 09:00

Field ID: G3SD0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444696	EPA 8321B	2,4-D	0.0020	U	ug/L	P436414	
		Acesulfame K	0.10	U	ug/L	P436330	
		2,4,5-T	0.0040	U	ug/L	P436414	
		AMPA	0.12	I	ug/L	P436330	
		Acetaminophen	0.0080	U	ug/L	P436414	
		Acetamiprid	0.0020	U	ug/L	P436414	
		Endothall	0.25	U	ug/L	P436330	
		Glufosinate	0.10	U	ug/L	P436330	
		Glyphosate	0.10	U	ug/L	P436330	
		Afidopyropen	0.0020	U	ug/L	P436414	
		Bentazon	0.0021	I	ug/L	P436414	
		Sucralose	0.010	U	ug/L	P436330	
		Benzovindiflupyr	0.0020	U	ug/L	P436414	
		Carbamazepine	8.0E-04	U	ug/L	P436414	
		Clothianidin	0.0020	U	ug/L	P436414	
		Dinotefuran	0.0020	U	ug/L	P436414	
		Diuron	0.0020	U	ug/L	P436414	
		Fenuron	0.032	U	ug/L	P436414	MS
		Fluridone	8.0E-04	U	ug/L	P436414	
		Imazapyr	0.26		ug/L	P436414	
		Hydrocodone	0.0020	U	ug/L	P436414	
		Ibuprofen	0.080	U	ug/L	P436414	
		Imidacloprid	0.0020	U	ug/L	P436414	
		Linuron	0.0040	U	ug/L	P436414	
		Mandestrobin	0.0020	U	ug/L	P436414	
		MCPP	0.0026	I	ug/L	P436414	
		Naproxen	0.0080	U	ug/L	P436414	MS
		Primidone	0.0040	U	ug/L	P436414	
		Pyraclostrobin	0.0020	U	ug/L	P436414	
		Silvex	0.0040	U	ug/L	P436414	
		Thiamethoxam	0.0020	U	ug/L	P436414	
		Tolfenpyrad	0.0020	U	ug/L	P436414	
		Triclopyr	0.0040	U	ug/L	P436414	
2444699	EPA 200.7 Rev. 4.4	Calcium	39.7		mg/L	P436489	
		Iron	950		ug/L	P436489	
		Magnesium	7.31		mg/L	P436489	
		Potassium	2.3		mg/L	P436489	
		Sodium	39.3		mg/L	P436489	
		Strontium	1.78E+03		ug/L	P436489	
		Tin	3.0	U	ug/L	P436489	
		Titanium	1.2	I	ug/L	P436489	
		Vanadium	2.0	U	ug/L	P436489	
		Zinc	5.0	U	ug/L	P436489	
	EPA 200.8 Rev. 5.4	Aluminum	66		ug/L	P436489	

Field ID: G3SD0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444699	EPA 200.8 Rev. 5.4	Antimony	0.052	I	ug/L	P436489	
		Arsenic	0.69		ug/L	P436489	
		Barium	15.6		ug/L	P436489	
		Beryllium	0.017	I	ug/L	P436489	
		Boron	33.4		ug/L	P436489	
		Cadmium	0.020	U	ug/L	P436489	
		Chromium	0.77	I	ug/L	P436489	
		Cobalt	0.156		ug/L	P436489	
		Copper	0.52	I	ug/L	P436489	
		Lead	0.20	U	ug/L	P436489	
		Manganese	18.8		ug/L	P436489	
		Molybdenum	0.15	U	ug/L	P436489	
		Nickel	0.50	U	ug/L	P436489	
		Selenium	0.27	I	ug/L	P436489	
		Silver	0.010	U	ug/L	P436489	
	SM 2340 B-2011	Thallium	0.10	U	ug/L	P436489	
		Hardness	129		mg/L	P436489	

Sample Location: MYRTLE SLOUGH AT SR 31

Collection Date/Time: 10/11/2023 09:45

Field ID: G3SD0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444698	EPA 8321B	2,4-D	2.7		ug/L	P436414	
		Acesulfame K	0.10	U	ug/L	P436330	
		2,4,5-T	0.0040	U	ug/L	P436414	
		AMPA	2.6		ug/L	P436330	
		Acetaminophen	0.0080	U	ug/L	P436414	
		Acetamiprid	0.0020	U	ug/L	P436414	
		Endothall	0.25	U	ug/L	P436330	
		Glufosinate	0.10	U	ug/L	P436330	
		Glyphosate	44		ug/L	P436330	
		Afidopyropen	0.0020	U	ug/L	P436414	
		Bentazon	0.0051		ug/L	P436414	
		Sucralose	0.010	U	ug/L	P436330	
		Benzovindiflupyr	0.0039	I	ug/L	P436414	
		Carbamazepine	8.0E-04	U	ug/L	P436414	
		Clothianidin	0.0070	I	ug/L	P436414	
		Dinotefuran	0.0020	U	ug/L	P436414	
		Diuron	0.071		ug/L	P436414	
		Fenuron	0.032	U	ug/L	P436414	MS
		Fluridone	0.0012	I	ug/L	P436414	
		Imazapyr	0.079		ug/L	P436414	
		Hydrocodone	0.0020	U	ug/L	P436414	
		Ibuprofen	0.080	U	ug/L	P436414	
		Imidacloprid	0.053		ug/L	P436414	
		Linuron	0.0040	U	ug/L	P436414	
		Mandestrobin	0.0020	U	ug/L	P436414	
		MCPP	0.0020	U	ug/L	P436414	
		Naproxen	0.0080	U	ug/L	P436414	MS
		Primidone	0.0040	U	ug/L	P436414	
		Pyraclostrobin	0.0020	U	ug/L	P436414	
		Silvex	0.0040	U	ug/L	P436414	
		Thiamethoxam	0.0029	I	ug/L	P436414	
		Tolfenpyrad	0.0020	U	ug/L	P436414	
		Triclopyr	0.0040	U	ug/L	P436414	

Sample Location: ALLIGATOR NORTH AT JONES LOOP RD

Collection Date/Time: 10/11/2023 10:45

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444697	EPA 8321B	2,4-D	0.068		ug/L	P436414	
		Acesulfame K	0.14	I	ug/L	P436330	
		2,4,5-T	0.0040	U	ug/L	P436414	
		AMPA	0.10	U	ug/L	P436330	
		Acetaminophen	0.0080	U	ug/L	P436414	
		Acetamiprid	0.0020	U	ug/L	P436414	
		Endothall	0.25	U	ug/L	P436330	
		Glufosinate	0.10	U	ug/L	P436330	
		Glyphosate	0.10	U	ug/L	P436330	
		Afidopyropen	0.0020	U	ug/L	P436414	
		Bentazon	0.0022	I	ug/L	P436414	
		Sucralose	0.21		ug/L	P436330	
		Benzovindiflupyr	0.0020	U	ug/L	P436414	
		Carbamazepine	8.0E-04	U	ug/L	P436414	
		Clothianidin	0.0020	U	ug/L	P436414	
		Dinotefuran	0.0020	U	ug/L	P436414	
		Diuron	0.0020	U	ug/L	P436414	
		Fenuron	0.032	U	ug/L	P436414	MS
		Fluridone	8.0E-04	U	ug/L	P436414	
		Imazapyr	0.036		ug/L	P436414	
		Hydrocodone	0.0020	U	ug/L	P436414	
		Ibuprofen	0.080	U	ug/L	P436414	
		Imidacloprid	0.0020	U	ug/L	P436414	
		Linuron	0.0040	U	ug/L	P436414	
		Mandestrobin	0.0020	U	ug/L	P436414	
		MCPP	0.0020	U	ug/L	P436414	
		Naproxen	0.0080	U	ug/L	P436414	MS
		Primidone	0.0040	U	ug/L	P436414	
		Pyraclostrobin	0.0020	U	ug/L	P436414	
		Silvex	0.0040	U	ug/L	P436414	
		Thiamethoxam	0.0020	U	ug/L	P436414	
		Tolfenpyrad	0.0020	U	ug/L	P436414	
		Triclopyr	0.0040	U	ug/L	P436414	
2444700	EPA 200.7 Rev. 4.4	Calcium	73.1		mg/L	P436489	
		Iron	880		ug/L	P436489	
		Magnesium	5.09		mg/L	P436489	
		Potassium	0.84	I	mg/L	P436489	
		Sodium	25.8		mg/L	P436489	
		Strontium	460		ug/L	P436489	
		Tin	3.0	U	ug/L	P436489	
		Titanium	0.78	I	ug/L	P436489	
		Vanadium	2.0	U	ug/L	P436489	
		Zinc	5.0	U	ug/L	P436489	
	EPA 200.8 Rev. 5.4	Aluminum	20	I	ug/L	P436489	

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444700	EPA 200.8 Rev. 5.4	Antimony	0.071	I	ug/L	P436489	
		Arsenic	1.06		ug/L	P436489	
		Barium	20.5		ug/L	P436489	
		Beryllium	0.011	I	ug/L	P436489	
		Boron	32.4		ug/L	P436489	
		Cadmium	0.020	U	ug/L	P436489	
		Chromium	0.40	U	ug/L	P436489	
		Cobalt	0.072	I	ug/L	P436489	
		Copper	0.40	U	ug/L	P436489	
		Lead	0.20	U	ug/L	P436489	
		Manganese	19.5		ug/L	P436489	
		Molybdenum	2.83		ug/L	P436489	
		Nickel	0.50	U	ug/L	P436489	
		Selenium	0.20	U	ug/L	P436489	
		Silver	0.010	U	ug/L	P436489	
		Thallium	0.10	U	ug/L	P436489	
	SM 2340 B-2011	Hardness	204		mg/L	P436489	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P436489

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: P436489

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: P436330

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: P436414

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: P436414

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: P436489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	115		P	80 - 120
Iron	113		P	80 - 120
Magnesium	113		P	80 - 120
Potassium	104		P	80 - 120
Sodium	108		P	80 - 120
Strontium	102		P	80 - 120
Tin	98.0		P	80 - 120
Titanium	101		P	80 - 120
Vanadium	100		P	80 - 120
Zinc	98.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P436489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.3		P	85 - 115
Antimony	99.0		P	85 - 115
Arsenic	99.7		P	85 - 115
Barium	104		P	85 - 115
Beryllium	98.2		P	85 - 115
Boron	94.7		P	85 - 115
Cadmium	99.9		P	85 - 115
Chromium	94.0		P	85 - 115
Cobalt	99.7		P	85 - 115
Copper	101		P	85 - 115
Lead	99.8		P	85 - 115
Manganese	99.4		P	85 - 115
Molybdenum	97.9		P	85 - 115
Nickel	96.3		P	85 - 115
Selenium	103		P	85 - 115
Silver	112		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 8321B

Batch ID: P436330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	101		P	40 - 150
AMPA	85.5		P	40 - 150
Endothall	97.0		P	40 - 150
Glufosinate	91.6		P	40 - 150
Glyphosate	86.8		P	40 - 150
Sucralose	105		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P436414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	62.9		P	40 - 150
2,4,5-T	68.5		P	40 - 150
Acetaminophen	81.1		P	30 - 150
Acetamiprid	81.1		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P436414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	69.5		P	30 - 150
Bentazon	94.8		P	30 - 150
Benzovindiflupyr	93.1		P	40 - 150
Carbamazepine	71.3		P	40 - 150
Clothianidin	81.9		P	40 - 150
Dinotefuran	92.7		P	40 - 150
Diuron	69.1		P	40 - 150
Fenuron	87.5		P	40 - 150
Fluridone	74.2		P	40 - 150
Hydrocodone	84.3		P	40 - 150
Ibuprofen	65.7		P	40 - 150
Imazapyr	73.9		P	40 - 150
Imidacloprid	79.2		P	40 - 150
Linuron	58.0		P	40 - 150
Mandestrobin	80.1		P	40 - 150
MCPP	77.9		P	40 - 150
Naproxen	62.6		P	40 - 150
Primidone	76.1		P	40 - 150
Pyraclostrobin	70.4		P	40 - 150
Silvex	68.5		P	40 - 150
Thiamethoxam	77.1		P	40 - 150
Tolfenpyrad	54.5		P	30 - 150
Triclopyr	69.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P436489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444583	Calcium	114	112	P/P	80 - 120
2444583	Iron	112	111	P/P	80 - 120
2444583	Magnesium	112	110	P/P	80 - 120
2444583	Potassium	104	103	P/P	80 - 120
2444583	Sodium	107	105	P/P	80 - 120
2444583	Strontium	103	101	P/P	80 - 120
2444583	Tin	97.7	96.8	P/P	80 - 120
2444583	Titanium	102	102	P/P	80 - 120
2444583	Vanadium	100	99.7	P/P	80 - 120
2444583	Zinc	98.8	97.6	P/P	80 - 120
2444730	Calcium	102		P	80 - 120
2444730	Iron	109		P	80 - 120
2444730	Magnesium	103		P	80 - 120
2444730	Potassium	101		P	80 - 120
2444730	Sodium	102		P	80 - 120
2444730	Strontium	98.9		P	80 - 120
2444730	Tin	93.6		P	80 - 120
2444730	Titanium	99.5		P	80 - 120
2444730	Vanadium	97.8		P	80 - 120
2444730	Zinc	94.2		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P436489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444583	Aluminum	98.8	98.0	P/P	80 - 120
2444583	Antimony	97.8	98.7	P/P	80 - 120
2444583	Arsenic	97.8	98.7	P/P	80 - 120
2444583	Barium	104	105	P/P	80 - 120
2444583	Beryllium	95.9	97.4	P/P	80 - 120
2444583	Boron	100	97.3	P/P	80 - 120
2444583	Cadmium	102	99.4	P/P	80 - 120
2444583	Chromium	94.5	94.8	P/P	80 - 120
2444583	Cobalt	99.6	99.2	P/P	80 - 120
2444583	Copper	100	101	P/P	80 - 120
2444583	Lead	100	100	P/P	80 - 120
2444583	Manganese	100	101	P/P	80 - 120
2444583	Molybdenum	97.1	97.7	P/P	80 - 120
2444583	Nickel	95.8	96.2	P/P	80 - 120
2444583	Selenium	99.5	99.9	P/P	80 - 120
2444583	Silver	111	111	P/P	80 - 120
2444583	Thallium	101	102	P/P	80 - 120
2444730	Aluminum	97.1		P	80 - 120
2444730	Antimony	98.4		P	80 - 120
2444730	Arsenic	96.3		P	80 - 120
2444730	Barium	102		P	80 - 120
2444730	Beryllium	98.7		P	80 - 120
2444730	Boron	100		P	80 - 120
2444730	Cadmium	99.8		P	80 - 120
2444730	Chromium	93.2		P	80 - 120
2444730	Cobalt	95.9		P	80 - 120
2444730	Copper	94.3		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P436489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444730	Lead	98.3		P	80 - 120
2444730	Manganese	102		P	80 - 120
2444730	Molybdenum	98.0		P	80 - 120
2444730	Nickel	90.8		P	80 - 120
2444730	Selenium	97.6		P	80 - 120
2444730	Silver	109		P	80 - 120
2444730	Thallium	102		P	80 - 120

Reference Method: EPA 8321B

Batch ID: P436330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444339	Acesulfame K	131	135	P/P	40 - 150
2444339	AMPA	86.2	96.9	P/P	40 - 150
2444339	Endothall	119	122	P/P	40 - 150
2444339	Glufosinate	92.1	86.6	P/P	40 - 150
2444339	Glyphosate	103	102	P/P	40 - 150
2444339	Sucralose	98.2	110	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P436414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444259	2,4-D	91.3	99.7	P/P	40 - 150
2444259	2,4,5-T	93.9	104	P/P	40 - 150
2444259	Acetaminophen	75.7	80.7	P/P	30 - 150
2444259	Acetamiprid	50.9	52.1	P/P	40 - 150
2444259	Afidopyropen	70.5	70.9	P/P	30 - 150
2444259	Bentazon	86.7	85.1	P/P	30 - 150
2444259	Benzovindiflupyr	80.1	86.6	P/P	40 - 150
2444259	Carbamazepine	43.1	45.1	P/P	40 - 150
2444259	Clothianidin	54.9	58.6	P/P	40 - 150
2444259	Dinotefuran	57.3	59.9	P/P	40 - 150
2444259	Diuron	42.3	42.5	P/P	40 - 150
2444259	Fenuron	33.2	35.6	F/F	40 - 150
2444259	Fluridone	51.7	54.2	P/P	40 - 150
2444259	Hydrocodone	54.7	58.0	P/P	40 - 150
2444259	Ibuprofen	51.8	50.1	P/P	40 - 150
2444259	Imazapyr	82.3	73.0	P/P	40 - 150
2444259	Imidacloprid	76.8	79.7	P/P	40 - 150
2444259	Linuron	54.2	49.7	P/P	40 - 150
2444259	Mandestrobin	66.5	73.4	P/P	40 - 150
2444259	MCPP	107	114	P/P	40 - 150
2444259	Naproxen	171	149	F/P	40 - 150
2444259	Primidone	57.9	51.1	P/P	40 - 150
2444259	Pyraclostrobin	79.4	79.7	P/P	40 - 150
2444259	Silvex	93.3	107	P/P	40 - 150
2444259	Thiamethoxam	63.8	66.6	P/P	40 - 150
2444259	Tolfenpyrad	58.7	61.9	P/P	30 - 150
2444259	Triclopyr	97.9	106	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P436489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444583	Calcium	1.05	Spike	P	0 - 20
2444583	Iron	1.01	Spike	P	0 - 20
2444583	Magnesium	1.07	Spike	P	0 - 20
2444583	Potassium	0.340	Spike	P	0 - 20
2444583	Sodium	1.29	Spike	P	0 - 20
2444583	Strontium	1.89	Spike	P	0 - 20
2444583	Tin	0.922	Spike	P	0 - 20
2444583	Titanium	0.459	Spike	P	0 - 20
2444583	Vanadium	0.778	Spike	P	0 - 20
2444583	Zinc	1.19	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P436489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444583	Aluminum	0.840	Spike	P	0 - 20
2444583	Antimony	0.925	Spike	P	0 - 20
2444583	Arsenic	0.932	Spike	P	0 - 20
2444583	Barium	0.525	Spike	P	0 - 20
2444583	Beryllium	1.41	Spike	P	0 - 20
2444583	Boron	2.47	Spike	P	0 - 20
2444583	Cadmium	2.21	Spike	P	0 - 20
2444583	Chromium	0.369	Spike	P	0 - 20
2444583	Cobalt	0.400	Spike	P	0 - 20
2444583	Copper	0.575	Spike	P	0 - 20
2444583	Lead	0.163	Spike	P	0 - 20
2444583	Manganese	0.904	Spike	P	0 - 20
2444583	Molybdenum	0.628	Spike	P	0 - 20
2444583	Nickel	0.430	Spike	P	0 - 20
2444583	Selenium	0.430	Spike	P	0 - 20
2444583	Silver	0.107	Spike	P	0 - 20
2444583	Thallium	0.791	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P436330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444339	Acesulfame K	2.92	Spike	P	0 - 30
2444339	AMPA	10.3	Spike	P	0 - 30
2444339	Endothall	2.11	Spike	P	0 - 30
2444339	Glufosinate	6.16	Spike	P	0 - 30
2444339	Glyphosate	0.344	Spike	P	0 - 30
2444339	Sucralose	6.82	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P436414

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: P436414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444259	2,4-D	8.17	Spike	P	0 - 30
2444259	2,4,5-T	10.2	Spike	P	0 - 30
2444259	Acetaminophen	6.31	Spike	P	0 - 30
2444259	Acetamiprid	2.26	Spike	P	0 - 30
2444259	Afidopyropen	0.474	Spike	P	0 - 30
2444259	Bentazon	1.90	Spike	P	0 - 30
2444259	Benzovindiflupyr	7.81	Spike	P	0 - 30
2444259	Carbamazepine	4.61	Spike	P	0 - 30
2444259	Clothianidin	6.45	Spike	P	0 - 30
2444259	Dinotefuran	4.50	Spike	P	0 - 30
2444259	Diuron	0.355	Spike	P	0 - 30
2444259	Fenuron	6.92	Spike	P	0 - 30
2444259	Fluridone	3.98	Spike	P	0 - 30
2444259	Hydrocodone	5.79	Spike	P	0 - 30
2444259	Ibuprofen	3.24	Spike	P	0 - 30
2444259	Imazapyr	8.50	Spike	P	0 - 30
2444259	Imidacloprid	3.61	Spike	P	0 - 30
2444259	Linuron	8.77	Spike	P	0 - 30
2444259	Mandestrobin	9.89	Spike	P	0 - 30
2444259	MCPP	6.19	Spike	P	0 - 30
2444259	Naproxen	13.4	Spike	P	0 - 30
2444259	Primidone	12.4	Spike	P	0 - 30
2444259	Pyraclostrobin	0.377	Spike	P	0 - 30
2444259	Silvex	13.8	Spike	P	0 - 30
2444259	Thiamethoxam	4.34	Spike	P	0 - 30
2444259	Tolfenpyrad	5.24	Spike	P	0 - 30
2444259	Triclopyr	7.65	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2444696
Field Sample ID: G3SD0100

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	86.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	59.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	35.5	P	30 - 160
EPA 8321B	Diuron-d6	43.3	P	30 - 160
EPA 8321B	Endothall-d6	132	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	58.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.6	P	30 - 160
EPA 8321B	Primidone-d5	37.8	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Lab Sample ID: 2444697
Field Sample ID: G2SD0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	107	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	42.4	P	30 - 160
EPA 8321B	Diuron-d6	38.3	P	30 - 160
EPA 8321B	Endothall-d6	116	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	47.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	64.2	P	30 - 160
EPA 8321B	Primidone-d5	60.7	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160

Lab Sample ID: 2444698
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	70.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	42.7	P	30 - 160
EPA 8321B	Diuron-d6	35.7	P	30 - 160
EPA 8321B	Endothall-d6	131	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	56.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	66.1	P	30 - 160
EPA 8321B	Primidone-d5	48.5	P	30 - 160
EPA 8321B	Sucralose-d6	109	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A122173

Included Lab Sample IDs: 2444696, 2444697, 2444698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.2	72.0	P/P	50 - 150
2,4-D	98.1	89.2	P/P	50 - 150
2,4,5-T	88.4	83.5	P/P	50 - 150
Acetaminophen	115	115	P/P	60 - 160
Acetamiprid	103	110	P/P	50 - 150
Afidopyropen	101	99.9	P/P	50 - 150
Bentazon	108	108	P/P	50 - 160
Benzovindiflupyr	108	143	P/P	50 - 150
Carbamazepine	103	106	P/P	60 - 150
Clothianidin	106	107	P/P	60 - 150
Dinotefuran	110	111	P/P	50 - 150
Diuron	110	111	P/P	60 - 160
Fenuron	104	108	P/P	60 - 150
Fluridone	99.5	102	P/P	60 - 160
Hydrocodone	106	104	P/P	60 - 150
Ibuprofen	83.4	97.3	P/P	50 - 160
Imazapyr	83.6	90.4	P/P	50 - 150
Imidacloprid	93.4	92.0	P/P	60 - 150
Linuron	103	109	P/P	60 - 150
Mandestrobin	104	107	P/P	50 - 150
MCPP	82.6	87.4	P/P	50 - 150
Naproxen	102	64.9	P/P	50 - 160
Primidone	98.5	99.2	P/P	60 - 150
Pyraclostrobin	106	118	P/P	60 - 150
Silvex	98.1	84.5	P/P	50 - 150
Thiamethoxam	102	95.1	P/P	50 - 150
Tolfenpyrad	115	125	P/P	60 - 150
Triclopyr	85.9	92.0	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A122179

Included Lab Sample IDs: 2444696, 2444697, 2444698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	109	119	P/P	60 - 160
Sucralose	103	111	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A122180

Included Lab Sample IDs: 2444696, 2444697, 2444698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	92.5	95.4	P/P	60 - 160
Endothall	92.0	94.8	P/P	60 - 160
Glufosinate	107	100	P/P	60 - 160
Glyphosate	91.4	97.8	P/P	60 - 160
Glyphosate	92.7	91.4	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122213

Included Lab Sample IDs: 2444699, 2444700

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.7	97.3	P/P	90 - 110
Antimony	96.8	95.4	P/P	90 - 110
Arsenic	98.3	95.4	P/P	90 - 110
Barium	101	98.2	P/P	90 - 110
Beryllium	98.1	97.8	P/P	90 - 110
Boron	93.0	94.6	P/P	90 - 110
Cadmium	99.2	98.1	P/P	90 - 110
Chromium	95.3	94.6	P/P	90 - 110
Cobalt	99.0	97.3	P/P	90 - 110
Copper	96.8	93.0	P/P	90 - 110
Lead	98.8	97.4	P/P	90 - 110
Manganese	100	101	P/P	90 - 110
Molybdenum	97.1	95.0	P/P	90 - 110
Nickel	95.7	92.8	P/P	90 - 110
Selenium	98.9	96.8	P/P	90 - 110
Silver	102	101	P/P	90 - 110
Thallium	98.6	97.7	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A122237

Included Lab Sample IDs: 2444699, 2444700

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	103	P/P	90 - 110
Iron	103	103	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Potassium	100	99.9	P/P	90 - 110
Sodium	101	100	P/P	90 - 110
Strontium	101	101	P/P	90 - 110
Tin	99.3	99.4	P/P	90 - 110
Titanium	100	99.8	P/P	90 - 110
Vanadium	99.9	99.7	P/P	90 - 110
Zinc	100	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Calcium	115	114	112	102		1.05
	Iron	113	112	111	109		1.01
	Magnesium	113	112	110	103		1.07
	Potassium	104	104	103	101		0.340
	Sodium	108	107	105	102		1.29
	Strontium	102	103	101	98.9		1.89
	Tin	98.0	97.7	96.8	93.6		0.922
	Titanium	101	102	102	99.5		0.459
	Vanadium	100	100	99.7	97.8		0.778
	Zinc	98.7	98.8	97.6	94.2		1.19
EPA 200.8 Rev. 5.4	Aluminum	98.3	98.8	98.0	97.1		0.840
	Antimony	99.0	97.8	98.7	98.4		0.925
	Arsenic	99.7	97.8	98.7	96.3		0.932
	Barium	104	104	105	102		0.525
	Beryllium	98.2	95.9	97.4	98.7		1.41
	Boron	94.7	100	97.3	100		2.47
	Cadmium	99.9	102	99.4	99.8		2.21
	Chromium	94.0	94.5	94.8	93.2		0.369
	Cobalt	99.7	99.6	99.2	95.9		0.400
	Copper	101	100	101	94.3		0.575
	Lead	99.8	100	100	98.3		0.163
	Manganese	99.4	100	101	102		0.904
	Molybdenum	97.9	97.1	97.7	98.0		0.628
	Nickel	96.3	95.8	96.2	90.8		0.430
	Selenium	103	99.5	99.9	97.6		0.430
	Silver	112	111	111	109		0.107
	Thallium	101	101	102	102		0.791
	2,4-D	62.9	91.3	99.7			8.17
	2,4,5-T	68.5	93.9	104			10.2
EPA 8321B	Acesulfame K	101	131	135			2.92
	Acetaminophen	81.1	75.7	80.7			6.31
	Acetamiprid	81.1	50.9	52.1			2.26
	Afidopyropen	69.5	70.5	70.9			0.474
	AMPA	85.5	86.2	96.9			10.3
	Bentazon	94.8	86.7	85.1			1.90
	Benzovindiflupyr	93.1	80.1	86.6			7.81
	Carbamazepine	71.3	43.1	45.1			4.61
	Clothianidin	81.9	54.9	58.6			6.45
	Dinotefuran	92.7	57.3	59.9			4.50
	Diuron	69.1	42.3	42.5			0.355
	Endothall	97.0	119	122			2.11
	Fenuron	87.5	33.2	35.6			6.92
	Fluridone	74.2	51.7	54.2			3.98
	Glufosinate	91.6	92.1	86.6			6.16
	Glyphosate	86.8	103	102			0.344
	Hydrocodone	84.3	54.7	58.0			5.79
	Ibuprofen	65.7	51.8	50.1			3.24
	Imazapyr	73.9	82.3	73.0			8.50
	Imidacloprid	79.2	76.8	79.7			3.61
	Linuron	58.0	54.2	49.7			8.77
	Mandestrobin	80.1	66.5	73.4			9.89
	MCPP	77.9	107	114			6.19
	Naproxen	62.6	171	149			13.4
	Primidone	76.1	57.9	51.1			12.4

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
EPA 8321B	Pyraclostrobin	70.4	79.4	79.7		0.377
	Silvex	68.5	93.3	107		13.8
	Sucralose	105	98.2	110		6.82
	Thiamethoxam	77.1	63.8	66.6		4.34
	Tolfenpyrad	54.5	58.7	61.9		5.24
	Triclopyr	69.6	97.9	106		7.65

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	2444699, 2444700
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2444699, 2444700
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2444696, 2444697, 2444698
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2444699, 2444700

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	10/12/2023	10/13/2023 12:55	George D Taylor	10/18/2023 18:18	Chase Roberts	2444699
	10/12/2023	10/13/2023 12:55	George D Taylor	10/18/2023 18:25	Chase Roberts	2444700
EPA 200.8 Rev. 5.4	10/12/2023	10/13/2023 12:55	George D Taylor	10/17/2023 16:10	Conrad Hartmann	2444699
	10/12/2023	10/13/2023 12:55	George D Taylor	10/17/2023 16:19	Conrad Hartmann	2444700
EPA 8321B	10/12/2023	10/13/2023 09:00	Hoor Shaik	10/14/2023 08:01	Juyoung Kim	2444696
	10/12/2023	10/13/2023 09:00	Hoor Shaik	10/14/2023 08:19	Juyoung Kim	2444697
	10/12/2023	10/13/2023 09:00	Hoor Shaik	10/14/2023 08:37	Juyoung Kim	2444698
	10/12/2023	10/13/2023 09:00	Hoor Shaik	10/16/2023 14:02	Juyoung Kim	2444698
	10/12/2023	10/16/2023 12:00	Hana Lee	10/16/2023 18:02	Hana Lee	2444696
	10/12/2023	10/16/2023 12:00	Hana Lee	10/16/2023 18:16	Hana Lee	2444697
	10/12/2023	10/16/2023 12:00	Hana Lee	10/16/2023 18:30	Hana Lee	2444698
	10/12/2023	10/16/2023 12:00	Hana Lee	10/17/2023 02:57	Hana Lee	2444696
	10/12/2023	10/16/2023 12:00	Hana Lee	10/17/2023 03:11	Hana Lee	2444697
	10/12/2023	10/16/2023 12:00	Hana Lee	10/17/2023 03:24	Hana Lee	2444698
SM 2340 B-2011	10/12/2023	10/16/2023 12:00	Hana Lee	10/17/2023 06:54	Hana Lee	2444698
	10/12/2023			10/18/2023 18:18	Chase Roberts	2444699
	10/12/2023			10/18/2023 18:25	Chase Roberts	2444700