

Chemical Analysis Report

SE-DIST-2023-09-15-03

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

Event Description: **SMP - Vero Beach**
Request ID: **RQ-2023-08-28-19**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

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

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 28-SEP-2023 14:58



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: VERO NORTH CANAL AT 66TH AVE

Collection Date/Time: 09/14/2023 09:05

Field ID: G5SE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437558	EPA 8270E	Aldrin	0.66	U	ng/L	P435028	
		Alpha-BHC	0.10	U	ng/L	P435028	
		Alpha-Chlordane	0.63	I	ng/L	P435028	
		PCB-1016	2.0	U	ng/L	P435028	
		Beta-BHC	0.10	U	ng/L	P435028	
		PCB-1221	2.0	U	ng/L	P435028	
		Beta-Cyfluthrin	1.3	U	ng/L	P435028	
		PCB-1232	2.0	U	ng/L	P435028	
		Bifenthrin	0.51	U	ng/L	P435028	
		PCB-1242	2.0	U	ng/L	P435028	
		PCB-1248	2.0	U	ng/L	P435028	
		Chlorothalonil	3.7	U	ng/L	P435028	
		PCB-1254	2.0	U	ng/L	P435028	
		Cis-Nonachlor	0.20	U	ng/L	P435028	
		PCB-1260	2.0	U	ng/L	P435028	
		Cypermethrin	1.5	U	ng/L	P435028	
		Dacthal	0.15	U	ng/L	P435028	
		DDD-p,p'	0.26	U	ng/L	P435028	
		DDE-p,p'	0.20	U	ng/L	P435028	
		DDT-p,p'	0.82	U	ng/L	P435028	
		Delta-BHC	0.41	U	ng/L	P435028	
		Deltamethrin	1.3	U	ng/L	P435028	
		Dichlobenil	0.26	U	ng/L	P435028	
		Dicofol	1.3	U	ng/L	P435028	
		Dieldrin	0.41	U	ng/L	P435028	
		Endosulfan I	0.41	U	ng/L	P435028	
		Endosulfan II	0.92	U	ng/L	P435028	
		Endosulfan Sulfate	0.31	U	ng/L	P435028	
		Endrin	0.92	U	ng/L	P435028	
		Endrin Aldehyde	0.77	UJ	ng/L	P435028	CCV, MS
		Endrin Ketone	0.41	U	ng/L	P435028	
		Esfenvalerate	0.77	U	ng/L	P435028	
		Ethalfuralin	0.15	U	ng/L	P435028	
		Fenpropathrin	0.26	U	ng/L	P435028	
		Gamma-BHC	0.13	U	ng/L	P435028	
		Gamma-Chlordane	0.29	I	ng/L	P435028	
		Heptachlor	0.20	U	ng/L	P435028	
		Heptachlor Epoxide	0.26	U	ng/L	P435028	
		Hexachlorobenzene**	1.0	U	ng/L	P435028	
		Kepone	14	UJ	ng/L	P435028	LCS, MS
		Lambda-Cyhalothrin	0.77	U	ng/L	P435028	
		Methoprene	0.77	U	ng/L	P435028	
		Methoxychlor	0.31	U	ng/L	P435028	
		MGK-264	0.20	U	ng/L	P435028	

Field ID: G5SE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437558	EPA 8270E	Mirex	0.36	U	ng/L	P435028	CCV
		Oxychlordane	0.31	U	ng/L	P435028	
		Permethrin	1.6	U	ng/L	P435028	
		Phenothrin	0.92	UJ	ng/L	P435028	
		Piperonyl Butoxide	0.32	I	ng/L	P435028	
		Prallethrin	2.0	U	ng/L	P435028	
		Tau-Fluvalinate	0.26	U	ng/L	P435028	
		Tetramethrin	0.77	U	ng/L	P435028	
		Trans-Nonachlor	0.20	U	ng/L	P435028	
		Triclosan Methyl	0.15	U	ng/L	P435028	
		Trifluralin	0.20	U	ng/L	P435028	
		Chlordane	2.0	U	ng/L	P435028	
		Toxaphene	15	U	ng/L	P435028	
		2,4-D	0.11		ug/L	P435061	
2437583	EPA 8321B	Acesulfame K	0.10	U	ug/L	P434981	MS
		2,4,5-T	0.0040	U	ug/L	P435061	
		AMPA	2.9		ug/L	P434981	
		Acetaminophen	0.0080	U	ug/L	P435061	
		Acetamiprid	0.0020	U	ug/L	P435061	
		Endothall	0.25	U	ug/L	P434981	
		Glufosinate	0.10	U	ug/L	P434981	
		Glyphosate	5.4		ug/L	P434981	
		Afidopyropen	0.0020	U	ug/L	P435061	
		Sucralose	0.13		ug/L	P434981	
		Bentazon	0.020		ug/L	P435061	
		Benzovindiflupyr	0.0020	U	ug/L	P435061	
		Carbamazepine	8.0E-04	U	ug/L	P435061	
		Clothianidin	0.0040	I	ug/L	P435061	
		Dinotefuran	0.37		ug/L	P435061	
		Diuron	0.0023	I	ug/L	P435061	
		Fenuron	0.032	U	ug/L	P435061	
		Fluridone	8.0E-04	U	ug/L	P435061	
		Imazapyr	0.038		ug/L	P435061	
		Hydrocodone	0.0020	U	ug/L	P435061	
		Ibuprofen	0.080	U	ug/L	P435061	
		Imidacloprid	0.018		ug/L	P435061	
		Linuron	0.0040	U	ug/L	P435061	
		Mandestrobin	0.0020	U	ug/L	P435061	
		MCPP	0.15		ug/L	P435061	
		Naproxen	0.0080	U	ug/L	P435061	
		Primidone	0.0040	U	ug/L	P435061	
		Pyraclostrobin	0.0020	U	ug/L	P435061	
		Silvex	0.0040	U	ug/L	P435061	
		Thiamethoxam	0.016		ug/L	P435061	
		Tolfenpyrad	0.0020	U	ug/L	P435061	

Field ID: G5SE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437583	EPA 8321B	Triclopyr	0.0040	U	ug/L	P435061	

Ref. Method and Comment:
EPA 8270E: Refer to the Lab Analysis Report for an explanation of QC Codes.
EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: NORTH CANAL ATUS1

Collection Date/Time: 09/14/2023 09:40

Field ID: G5SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437584	EPA 8321B	2,4-D	3.2		ug/L	P435061	
		Acesulfame K	0.10	I	ug/L	P434981	
		2,4,5-T	0.0040	U	ug/L	P435061	
		AMPA	5.3		ug/L	P434981	
		Acetaminophen	0.0080	U	ug/L	P435061	
		Acetamiprid	0.0020	U	ug/L	P435061	
		Endothall	0.25	U	ug/L	P434981	
		Glufosinate	0.10	U	ug/L	P434981	
		Glyphosate	38		ug/L	P434981	
		Afidopyropen	0.0020	U	ug/L	P435061	
		Sucralose	4.8		ug/L	P434981	
		Bentazon	0.095		ug/L	P435061	MS
		Benzovindiflupyr	0.0020	U	ug/L	P435061	
		Carbamazepine	0.0038		ug/L	P435061	
		Clothianidin	0.0024	I	ug/L	P435061	
		Dinotefuran	0.0091		ug/L	P435061	
		Diuron	0.0047	I	ug/L	P435061	
		Fenuron	0.032	U	ug/L	P435061	
		Fluridone	0.030		ug/L	P435061	
		Imazapyr	0.099		ug/L	P435061	
		Hydrocodone	0.0020	U	ug/L	P435061	
		Ibuprofen	0.080	U	ug/L	P435061	
		Imidacloprid	0.0083		ug/L	P435061	
		Linuron	0.0040	U	ug/L	P435061	
		Mandestrobin	0.0020	U	ug/L	P435061	
		MCPP	0.032		ug/L	P435061	
		Naproxen	0.0080	U	ug/L	P435061	MS
		Primidone	0.017		ug/L	P435061	
		Pyraclostrobin	0.0020	U	ug/L	P435061	
		Silvex	0.0040	U	ug/L	P435061	
		Thiamethoxam	0.011		ug/L	P435061	
		Tolfenpyrad	0.0020	U	ug/L	P435061	
		Triclopyr	0.0040	U	ug/L	P435061	

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: SOUTH CANAL AT US 1

Collection Date/Time: 09/14/2023 11:30

Field ID: G5SE0044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437585	EPA 200.7 Rev. 4.4	Calcium	101		mg/L	P435144	
		Iron	820		ug/L	P435144	
		Magnesium	31.0		mg/L	P435144	
		Potassium	7.0		mg/L	P435144	
		Sodium	166		mg/L	P435144	
		Strontium	4.28E+03		ug/L	P435144	
		Tin	3.0	U	ug/L	P435144	
		Titanium	1.3	I	ug/L	P435144	
		Vanadium	2.8	I	ug/L	P435144	
		Zinc	5.0	U	ug/L	P435144	
	EPA 200.8 Rev. 5.4	Aluminum	140		ug/L	P435144	
		Antimony	0.071	I	ug/L	P435144	
		Arsenic	0.95		ug/L	P435144	
		Barium	42.6		ug/L	P435144	
		Beryllium	0.021	I	ug/L	P435144	
		Boron	105		ug/L	P435144	
		Cadmium	0.020	U	ug/L	P435144	
		Chromium	0.72	I	ug/L	P435144	
		Cobalt	0.127		ug/L	P435144	
		Copper	1.14		ug/L	P435144	
	SM 2340 B-2011	Lead	0.20	U	ug/L	P435144	
		Manganese	20.5		ug/L	P435144	
		Molybdenum	0.83		ug/L	P435144	
		Nickel	0.50	U	ug/L	P435144	
		Selenium	0.21	I	ug/L	P435144	
		Silver	0.010	U	ug/L	P435144	
		Thallium	0.10	U	ug/L	P435144	
		Hardness	379		mg/L	P435144	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P435144

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: P435144

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 8270E

Batch ID: P435028

Component	Result	Code	Units
Aldrin	0.65	U	ng/L
Aldrin	0.65	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-BHC	0.10	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Alpha-Chlordane	0.20	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-BHC	0.10	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Beta-Cyfluthrin	1.2	U	ng/L
Bifenthrin	0.50	U	ng/L
Bifenthrin	0.50	U	ng/L
Chlorothalonil	3.6	U	ng/L
Chlorothalonil	3.6	U	ng/L
Cis-Nonachlor	0.20	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P435028

Component	Result	Code	Units
Cis-Nonachlor	0.20	U	ng/L
Cypermethrin	1.5	U	ng/L
Cypermethrin	1.5	U	ng/L
Dacthal	0.15	U	ng/L
Dacthal	0.15	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDD-p,p'	0.25	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDE-p,p'	0.20	U	ng/L
DDT-p,p'	0.80	U	ng/L
DDT-p,p'	0.80	U	ng/L
Delta-BHC	0.40	U	ng/L
Delta-BHC	0.40	U	ng/L
Deltamethrin	1.2	U	ng/L
Deltamethrin	1.2	U	ng/L
Dichlobenil	0.25	U	ng/L
Dichlobenil	0.25	U	ng/L
Dicofol	1.2	U	ng/L
Dicofol	1.2	U	ng/L
Dieldrin	0.40	U	ng/L
Dieldrin	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan I	0.40	U	ng/L
Endosulfan II	0.90	U	ng/L
Endosulfan II	0.90	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endrin	0.90	U	ng/L
Endrin	0.90	U	ng/L
Endrin Aldehyde	0.75	U	ng/L
Endrin Aldehyde	0.75	U	ng/L
Endrin Ketone	0.40	U	ng/L
Endrin Ketone	0.40	U	ng/L
Esfenvalerate	0.75	U	ng/L
Esfenvalerate	0.75	U	ng/L
Ethalfuralin	0.15	U	ng/L
Ethalfuralin	0.15	U	ng/L
Fenpropathrin	0.25	U	ng/L
Fenpropathrin	0.25	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-BHC	0.12	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Gamma-Chlordane	0.20	U	ng/L
Heptachlor	0.20	U	ng/L
Heptachlor	0.20	U	ng/L
Heptachlor Epoxide	0.25	U	ng/L
Heptachlor Epoxide	0.25	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Hexachlorobenzene	1.0	U	ng/L
Kepone	14	U	ng/L
Kepone	14	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E

Batch ID: P435028

Component	Result	Code	Units
Lambda-Cyhalothrin	0.75	U	ng/L
Methoprene	0.75	U	ng/L
Methoprene	0.75	U	ng/L
Methoxychlor	0.30	U	ng/L
Methoxychlor	0.30	U	ng/L
MGK-264	0.20	U	ng/L
MGK-264	0.20	U	ng/L
Mirex	0.35	U	ng/L
Mirex	0.35	U	ng/L
Oxychlordane	0.30	U	ng/L
Oxychlordane	0.30	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1016	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1221	2.0	U	ng/L
PCB-1232	2.0	U	ng/L
PCB-1232	2.0	U	ng/L
PCB-1242	2.0	U	ng/L
PCB-1242	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1248	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1254	2.0	U	ng/L
PCB-1260	2.0	U	ng/L
PCB-1260	2.0	U	ng/L
Permethrin	1.6	U	ng/L
Permethrin	1.6	U	ng/L
Phenothrin	0.90	U	ng/L
Phenothrin	0.90	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Piperonyl Butoxide	0.15	U	ng/L
Prallethrin	2.0	U	ng/L
Prallethrin	2.0	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tau-Fluvalinate	0.25	U	ng/L
Tetramethrin	0.75	U	ng/L
Tetramethrin	0.75	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Trans-Nonachlor	0.20	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Triclosan Methyl	0.15	U	ng/L
Trifluralin	0.20	U	ng/L
Trifluralin	0.20	U	ng/L

Reference Method: EPA 8276

Batch ID: P435028

Component	Result	Code	Units
Chlordane	2.0	U	ng/L
Chlordane	2.0	U	ng/L
Toxaphene	15	U	ng/L
Toxaphene	15	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P434981

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: P435061

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: P435144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	107		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	102		P	85 - 115
Strontium	100		P	85 - 115
Tin	104		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P435144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.5		P	85 - 115
Antimony	95.9		P	85 - 115
Arsenic	98.0		P	85 - 115
Barium	99.9		P	85 - 115
Beryllium	93.0		P	85 - 115
Boron	102		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	95.8		P	85 - 115
Cobalt	96.2		P	85 - 115
Copper	96.4		P	85 - 115
Lead	92.4		P	85 - 115
Manganese	97.3		P	85 - 115
Molybdenum	97.1		P	85 - 115
Nickel	95.8		P	85 - 115
Selenium	97.3		P	85 - 115
Silver	111		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 8270E

Batch ID: P435028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	52.2		P	30 - 96.0
Alpha-BHC	82.1		P	70 - 109
Alpha-Chlordane	106		P	45 - 107
Beta-BHC	70.0		P	64 - 138
Beta-Cyfluthrin	54.6		P	17 - 141
Bifenthrin	47.0		P	10 - 113
Chlorothalonil	125		P	26 - 180
Cis-Nonachlor	88.7		P	37 - 102
Cypermethrin	45.3		P	20 - 133
Dacthal	83.2		P	69 - 114
DDD-p,p'	58.8		P	42 - 105
DDE-p,p'	66.1		P	42 - 106
DDT-p,p'	66.7		P	42 - 107
Delta-BHC	70.4		P	67 - 144
Deltamethrin	56.1		P	15 - 149

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270E

Batch ID: P435028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Dichlobenil	80.5		P	46 - 117
Dicofol	87.3		P	34 - 114
Dieldrin	68.3		P	50 - 108
Endosulfan I	68.3		P	55 - 104
Endosulfan II	80.1		P	51 - 111
Endosulfan Sulfate	101		P	56 - 121
Endrin	65.2		P	10 - 106
Endrin Aldehyde	112		P	34 - 114
Endrin Ketone	77.7		P	63 - 177
Esfenvalerate	47.5		P	29 - 143
Ethalfuralin	67.0		P	46 - 96.0
Fenpropathrin	62.0		P	28 - 115
Gamma-BHC	91.4		P	65 - 121
Gamma-Chlordane	61.0		P	39 - 103
Heptachlor	86.6		P	39 - 94.0
Heptachlor Epoxide	77.4		P	54 - 104
Hexachlorobenzene	82.7		P	36 - 100
Kepone	277		F	10 - 225
Lambda-Cyhalothrin	44.0		P	10 - 135
Methoprene	44.0		P	10 - 109
Methoxychlor	65.2		P	52 - 112
MGK-264	88.5		P	44 - 117
Mirex	55.0		P	20 - 90.0
Oxychlordane	71.2		P	44 - 102
PCB-1016	71.3		P	45 - 107
PCB-1260	89.4		P	40 - 118
Permethrin	46.3		P	18 - 135
Phenothrin	39.3		P	10 - 102
Piperonyl Butoxide	71.6		P	28 - 156
Prallethrin	54.3		P	28 - 113
Tau-Fluvalinate	50.7		P	10 - 123
Tetramethrin	57.1		P	18 - 158
Trans-Nonachlor	72.7		P	39 - 104
Triclosan Methyl	67.4		P	54 - 108
Trifluralin	69.3		P	46 - 97.0

Reference Method: EPA 8276

Batch ID: P435028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	77.7		P	52 - 117
Toxaphene	86.2		P	44 - 125

Reference Method: EPA 8321B

Batch ID: P434981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	101		P	40 - 150
AMPA	110		P	40 - 150
Endothall	93.6		P	40 - 150
Glufosinate	106		P	40 - 150
Glyphosate	97.5		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P434981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	95.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P435061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.0		P	40 - 150
2,4,5-T	96.3		P	40 - 150
Acetaminophen	79.0		P	30 - 150
Acetamiprid	87.8		P	40 - 150
Afidopyropen	58.0		P	30 - 150
Bentazon	82.3		P	30 - 150
Benzovindiflupyr	88.0		P	40 - 150
Carbamazepine	84.4		P	40 - 150
Clothianidin	95.1		P	40 - 150
Dinotefuran	95.2		P	40 - 150
Diuron	80.0		P	40 - 150
Fenuron	89.2		P	40 - 150
Fluridone	80.7		P	40 - 150
Hydrocodone	77.0		P	40 - 150
Ibuprofen	71.0		P	40 - 150
Imazapyr	80.6		P	40 - 150
Imidacloprid	87.1		P	40 - 150
Linuron	71.2		P	40 - 150
Mandestrobin	87.4		P	40 - 150
MCPP	111		P	40 - 150
Naproxen	87.2		P	40 - 150
Primidone	85.6		P	40 - 150
Pyraclostrobin	70.6		P	40 - 150
Silvex	99.2		P	40 - 150
Thiamethoxam	96.1		P	40 - 150
Tolfenpyrad	65.3		P	30 - 150
Triclopyr	102		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P435144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437356	Calcium	102		P	80 - 120
2437356	Iron	105	105	P/P	80 - 120
2437356	Magnesium	107	106	P/P	80 - 120
2437356	Potassium	102	103	P/P	80 - 120
2437356	Sodium	102		P	80 - 120
2437356	Strontium	99.4	99.4	P/P	80 - 120
2437356	Tin	99.0	98.4	P/P	80 - 120
2437356	Titanium	97.2	95.4	P/P	80 - 120
2437356	Vanadium	102	101	P/P	80 - 120
2437356	Zinc	100	99.2	P/P	80 - 120
2437492	Calcium	104		P	80 - 120
2437492	Iron	105		P	80 - 120
2437492	Magnesium	103		P	80 - 120
2437492	Potassium	101		P	80 - 120
2437492	Sodium	103		P	80 - 120
2437492	Strontium	99.2		P	80 - 120
2437492	Tin	102		P	80 - 120
2437492	Titanium	103		P	80 - 120
2437492	Vanadium	104		P	80 - 120
2437492	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P435144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437356	Aluminum	107	99.4	P/P	80 - 120
2437356	Antimony	93.5	95.8	P/P	80 - 120
2437356	Arsenic	96.8	99.0	P/P	80 - 120
2437356	Barium	99.4	103	P/P	80 - 120
2437356	Beryllium	94.7	94.8	P/P	80 - 120
2437356	Boron	102	104	P/P	80 - 120
2437356	Cadmium	102	101	P/P	80 - 120
2437356	Chromium	96.6	98.3	P/P	80 - 120
2437356	Cobalt	95.5	96.7	P/P	80 - 120
2437356	Copper	95.8	96.7	P/P	80 - 120
2437356	Lead	93.1	95.0	P/P	80 - 120
2437356	Manganese	95.3	99.2	P/P	80 - 120
2437356	Molybdenum	96.4	98.9	P/P	80 - 120
2437356	Nickel	97.1	97.2	P/P	80 - 120
2437356	Selenium	97.1	99.2	P/P	80 - 120
2437356	Silver	109	110	P/P	80 - 120
2437356	Thallium	103	105	P/P	80 - 120
2437492	Aluminum	97.6		P	80 - 120
2437492	Antimony	98.8		P	80 - 120
2437492	Arsenic	101		P	80 - 120
2437492	Barium	102		P	80 - 120
2437492	Beryllium	95.8		P	80 - 120
2437492	Boron	102		P	80 - 120
2437492	Cadmium	104		P	80 - 120
2437492	Chromium	98.0		P	80 - 120
2437492	Cobalt	96.9		P	80 - 120
2437492	Copper	97.3		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P435144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437492	Lead	94.5		P	80 - 120
2437492	Manganese	98.6		P	80 - 120
2437492	Molybdenum	100		P	80 - 120
2437492	Nickel	95.5		P	80 - 120
2437492	Selenium	98.6		P	80 - 120
2437492	Silver	109		P	80 - 120
2437492	Thallium	104		P	80 - 120

Reference Method: EPA 8270E

Batch ID: P435028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437224	Aldrin	48.6	63.3	P/P	24 - 81.0
2437224	Alpha-BHC	82.2	80.5	P/P	65 - 110
2437224	Alpha-Chlordane	86.0	87.8	P/P	43 - 119
2437224	Beta-BHC	62.5	67.5	P/P	54 - 165
2437224	Beta-Cyfluthrin	59.5	65.6	P/P	27 - 165
2437224	Bifenthrin	41.4	51.8	P/P	17 - 117
2437224	Chlorothalonil	123	142	P/P	10 - 255
2437224	Cis-Nonachlor	70.3	81.9	P/P	34 - 98.0
2437224	Cypermethrin	45.5	50.3	P/P	25 - 143
2437224	Dacthal	87.1	101	P/P	55 - 139
2437224	DDD-p,p'	60.0	66.3	P/P	30 - 109
2437224	DDE-p,p'	49.5	56.1	P/P	35 - 106
2437224	DDT-p,p'	65.0	73.9	P/P	41 - 101
2437224	Delta-BHC	79.7	111	P/P	58 - 165
2437224	Deltamethrin	49.9	66.1	P/P	10 - 194
2437224	Dichlobenil	86.3	73.9	P/P	22 - 114
2437224	Dicofol	92.2	104	P/P	17 - 133
2437224	Dieldrin	63.5	64.5	P/P	45 - 129
2437224	Endosulfan I	57.9	69.4	P/P	49 - 104
2437224	Endosulfan II	80.1	81.9	P/P	37 - 117
2437224	Endosulfan Sulfate	82.2	115	P/P	38 - 128
2437224	Endrin	65.0	67.9	P/P	35 - 116
2437224	Endrin Aldehyde	73.9	129	P/F	19 - 108
2437224	Endrin Ketone	66.9	89.8	P/P	44 - 134
2437224	Esfenvalerate	34.7	57.4	P/P	27 - 176
2437224	Ethalfuralin	68.5	75.5	P/P	49 - 100
2437224	Fenpropathrin	62.7	71.4	P/P	34 - 117
2437224	Gamma-BHC	91.5	81.7	P/P	59 - 129
2437224	Gamma-Chlordane	54.5	73.9	P/P	33 - 107
2437224	Heptachlor	73.9	74.6	P/P	37 - 94.0
2437224	Heptachlor Epoxide	84.3	111	P/P	38 - 118
2437224	Hexachlorobenzene	74.8	89.9	P/P	35 - 97.0
2437224	Kepone	303	299	F/F	10 - 221
2437224	Lambda-Cyhalothrin	39.6	47.6	P/P	23 - 190
2437224	Methoprene	36.0	49.8	P/P	21 - 109
2437224	Methoxychlor	68.4	81.6	P/P	46 - 118
2437224	MGK-264	90.0	96.4	P/P	39 - 122
2437224	Mirex	63.9	78.7	P/P	25 - 90.0
2437224	Oxychlordane	66.5	89.1	P/P	42 - 100
2437224	Permethrin	41.8	50.2	P/P	33 - 181

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P435028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437224	Phenothrin	53.9	62.8	P/P	12 - 125
2437224	Piperonyl Butoxide	55.5	63.2	P/P	10 - 178
2437224	Prallethrin	52.1	55.4	P/P	24 - 122
2437224	Tau-Fluvalinate	51.3	74.2	P/P	13 - 151
2437224	Tetramethrin	59.3	63.5	P/P	16 - 172
2437224	Trans-Nonachlor	59.0	70.7	P/P	39 - 100
2437224	Triclosan Methyl	66.4	77.0	P/P	43 - 110
2437224	Trifluralin	65.5	76.1	P/P	45 - 94.0
2437232	PCB-1016	79.1	79.0	P/P	45 - 107
2437232	PCB-1260	84.7	83.4	P/P	40 - 112

Reference Method: EPA 8276

Batch ID: P435028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437232	Chlordane	83.4	81.0	P/P	43 - 123
2437232	Toxaphene	125	109	P/P	27 - 156

Reference Method: EPA 8321B

Batch ID: P434981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436927	Acesulfame K	103	107	P/P	40 - 150
2436927	AMPA	59.1	60.2	P/P	40 - 150
2436927	Endothall	118	121	P/P	40 - 150
2436927	Glufosinate	116	116	P/P	40 - 150
2436927	Glyphosate	77.6	76.9	P/P	40 - 150
2436927	Sucralose	104	112	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P435061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437002	2,4-D	99.0	92.2	P/P	40 - 150
2437002	2,4,5-T	98.0	97.7	P/P	40 - 150
2437002	Acetaminophen	69.8	68.0	P/P	30 - 150
2437002	Acetamiprid	57.6	57.8	P/P	40 - 150
2437002	Afidopyropen	73.6	67.2	P/P	30 - 150
2437002	Bentazon	29.3	29.6	F/F	30 - 150
2437002	Benzovindiflupyr	89.1	83.8	P/P	40 - 150
2437002	Carbamazepine	57.5	55.4	P/P	40 - 150
2437002	Dinotefuran	65.8	66.1	P/P	40 - 150
2437002	Diuron	49.5	47.1	P/P	40 - 150
2437002	Fenuron	41.8	40.8	P/P	40 - 150
2437002	Fluridone	52.9	52.2	P/P	40 - 150
2437002	Hydrocodone	45.8	43.9	P/P	40 - 150
2437002	Ibuprofen	56.6	61.4	P/P	40 - 150
2437002	Imazapyr	90.2	72.9	P/P	40 - 150
2437002	Linuron	57.6	51.4	P/P	40 - 150
2437002	Mandestrobin	55.3	70.8	P/P	40 - 150
2437002	MCP	108	100	P/P	40 - 150
2437002	Naproxen	460	396	F/F	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P435061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437002	Primidone	68.1	61.9	P/P	40 - 150
2437002	Pyraclostrobin	72.1	65.5	P/P	40 - 150
2437002	Silvex	97.3	92.0	P/P	40 - 150
2437002	Thiamethoxam	64.5	62.8	P/P	40 - 150
2437002	Tolfenpyrad	52.7	58.6	P/P	30 - 150
2437002	Triclopyr	107	97.8	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P435144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437356	Calcium	0.299	Spike	P	0 - 20
2437356	Iron	0.239	Spike	P	0 - 20
2437356	Magnesium	0.154	Spike	P	0 - 20
2437356	Potassium	0.613	Spike	P	0 - 20
2437356	Sodium	0.107	Spike	P	0 - 20
2437356	Strontium	0.0281	Spike	P	0 - 20
2437356	Tin	0.548	Spike	P	0 - 20
2437356	Titanium	1.60	Spike	P	0 - 20
2437356	Vanadium	0.808	Spike	P	0 - 20
2437356	Zinc	0.948	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P435144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437356	Aluminum	4.90	Spike	P	0 - 20
2437356	Antimony	2.50	Spike	P	0 - 20
2437356	Arsenic	2.18	Spike	P	0 - 20
2437356	Barium	2.44	Spike	P	0 - 20
2437356	Beryllium	0.0722	Spike	P	0 - 20
2437356	Boron	1.34	Spike	P	0 - 20
2437356	Cadmium	0.990	Spike	P	0 - 20
2437356	Chromium	1.75	Spike	P	0 - 20
2437356	Cobalt	1.24	Spike	P	0 - 20
2437356	Copper	0.934	Spike	P	0 - 20
2437356	Lead	1.91	Spike	P	0 - 20
2437356	Manganese	1.70	Spike	P	0 - 20
2437356	Molybdenum	2.48	Spike	P	0 - 20
2437356	Nickel	0.0528	Spike	P	0 - 20
2437356	Selenium	2.17	Spike	P	0 - 20
2437356	Silver	1.44	Spike	P	0 - 20
2437356	Thallium	2.00	Spike	P	0 - 20

Reference Method: EPA 8270E

Batch ID: P435028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437224	Aldrin	26.2	Spike	P	0 - 41
2437224	Alpha-BHC	2.11	Spike	P	0 - 25
2437224	Alpha-Chlordane	2.05	Spike	P	0 - 32
2437224	Beta-BHC	7.70	Spike	P	0 - 33
2437224	Beta-Cyfluthrin	9.72	Spike	P	0 - 43
2437224	Bifenthrin	22.2	Spike	P	0 - 52
2437224	Chlorothalonil	14.4	Spike	P	0 - 82
2437224	Cis-Nonachlor	15.2	Spike	P	0 - 33
2437224	Cypermethrin	9.92	Spike	P	0 - 51
2437224	Dacthal	14.7	Spike	P	0 - 27
2437224	DDD-p,p'	9.99	Spike	P	0 - 39
2437224	DDE-p,p'	12.5	Spike	P	0 - 31

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P435028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437224	DDT-p,p'	12.8	Spike	P	0 - 29
2437224	Delta-BHC	32.4	Spike	P	0 - 35
2437224	Deltamethrin	28.0	Spike	P	0 - 100
2437224	Dichlobenil	15.5	Spike	P	0 - 40
2437224	Dicofol	12.5	Spike	P	0 - 37
2437224	Dieldrin	1.51	Spike	P	0 - 27
2437224	Endosulfan I	18.1	Spike	P	0 - 23
2437224	Endosulfan II	2.21	Spike	P	0 - 34
2437224	Endosulfan Sulfate	33.7	Spike	P	0 - 36
2437224	Endrin	4.38	Spike	P	0 - 45
2437224	Endrin Aldehyde	54.6	Spike	P	0 - 76
2437224	Endrin Ketone	29.2	Spike	P	0 - 43
2437224	Esfenvalerate	49.3	Spike	P	0 - 51
2437224	Ethalfuralin	9.79	Spike	P	0 - 22
2437224	Fenpropathrin	12.9	Spike	P	0 - 49
2437224	Gamma-BHC	11.3	Spike	P	0 - 28
2437224	Gamma-Chlordane	30.3	Spike	P	0 - 40
2437224	Heptachlor	0.914	Spike	P	0 - 29
2437224	Heptachlor Epoxide	27.7	Spike	P	0 - 33
2437224	Hexachlorobenzene	18.4	Spike	P	0 - 36
2437224	Kepone	1.29	Spike	P	0 - 85
2437224	Lambda-Cyhalothrin	18.4	Spike	P	0 - 55
2437224	Methoprene	32.1	Spike	P	0 - 53
2437224	Methoxychlor	17.5	Spike	P	0 - 50
2437224	MGK-264	6.90	Spike	P	0 - 43
2437224	Mirex	20.8	Spike	P	0 - 40
2437224	Oxychlordane	29.1	Spike	P	0 - 31
2437224	Permethrin	18.4	Spike	P	0 - 50
2437224	Phenothrin	15.3	Spike	P	0 - 58
2437224	Piperonyl Butoxide	13.0	Spike	P	0 - 100
2437224	Prallethrin	6.20	Spike	P	0 - 39
2437224	Tau-Fluvalinate	36.5	Spike	P	0 - 54
2437224	Tetramethrin	6.85	Spike	P	0 - 51
2437224	Trans-Nonachlor	18.0	Spike	P	0 - 39
2437224	Triclosan Methyl	14.8	Spike	P	0 - 31
2437224	Trifluralin	14.9	Spike	P	0 - 22
2437232	PCB-1016	0.0793	Spike	P	0 - 25
2437232	PCB-1260	1.47	Spike	P	0 - 30

Reference Method: EPA 8276
Batch ID: P435028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437232	Chlordane	2.88	Spike	P	0 - 28
2437232	Toxaphene	12.9	Spike	P	0 - 27

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P434981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436927	Acesulfame K	3.90	Spike	P	0 - 30
2436927	AMPA	1.99	Spike	P	0 - 30
2436927	Endothall	2.60	Spike	P	0 - 30
2436927	Glufosinate	0.0698	Spike	P	0 - 30
2436927	Glyphosate	0.959	Spike	P	0 - 30
2436927	Sucralose	7.82	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P435061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437002	2,4-D	7.08	Spike	P	0 - 30
2437002	2,4,5-T	0.337	Spike	P	0 - 30
2437002	Acetaminophen	2.67	Spike	P	0 - 30
2437002	Acetamiprid	0.320	Spike	P	0 - 30
2437002	Afidopyropen	8.99	Spike	P	0 - 30
2437002	Bentazon	1.09	Spike	P	0 - 30
2437002	Benzovindiflupyr	6.15	Spike	P	0 - 30
2437002	Carbamazepine	3.76	Spike	P	0 - 30
2437002	Clothianidin	5.36	Spike	P	0 - 30
2437002	Dinotefuran	0.353	Spike	P	0 - 30
2437002	Diuron	4.86	Spike	P	0 - 30
2437002	Fenuron	2.64	Spike	P	0 - 30
2437002	Fluridone	1.17	Spike	P	0 - 30
2437002	Hydrocodone	4.28	Spike	P	0 - 30
2437002	Ibuprofen	8.14	Spike	P	0 - 30
2437002	Imazapyr	11.9	Spike	P	0 - 30
2437002	Imidacloprid	3.18	Spike	P	0 - 30
2437002	Linuron	11.4	Spike	P	0 - 30
2437002	Mandestrobin	24.6	Spike	P	0 - 30
2437002	MCPP	7.91	Spike	P	0 - 30
2437002	Naproxen	14.8	Spike	P	0 - 30
2437002	Primidone	9.57	Spike	P	0 - 30
2437002	Pyraclostrobin	7.87	Spike	P	0 - 30
2437002	Silvex	5.61	Spike	P	0 - 30
2437002	Thiamethoxam	2.52	Spike	P	0 - 30
2437002	Tolfenpyrad	10.4	Spike	P	0 - 30
2437002	Triclopyr	8.76	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2437558
Field Sample ID: G5SE0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	101	P	37 - 129
EPA 8270E	Decachlorobiphenyl	92.7	P	26 - 115
EPA 8270E	Tetrachloro-m-xylene	58.3	P	30 - 101
EPA 8270E	Tetrachloro-m-xylene	62.9	P	29 - 95.0
EPA 8276	Decachlorobiphenyl	83.8	P	28 - 102
EPA 8276	PCNB	109	P	49 - 115

Lab Sample ID: 2437583
Field Sample ID: G5SE0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	88.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	63.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	50.8	P	30 - 160
EPA 8321B	Diuron-d6	40.2	P	30 - 160
EPA 8321B	Endothall-d6	114	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	105	P	30 - 160
EPA 8321B	Ibuprofen-d3	56.4	P	30 - 160
EPA 8321B	Primidone-d5	58.6	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	30 - 160

Lab Sample ID: 2437584
Field Sample ID: G5SE0043

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	64.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	51.6	P	30 - 160
EPA 8321B	Diuron-d6	39.1	P	30 - 160
EPA 8321B	Endothall-d6	119	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	61.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	60.8	P	30 - 160
EPA 8321B	Primidone-d5	55.3	P	30 - 160
EPA 8321B	Sucralose-d6	133	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A121577

Included Lab Sample IDs: 2437583, 2437584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	80.0	P/P	60 - 160
Acesulfame K	80.0	104	P/P	60 - 160
Sucralose	90.8	99.1	P/P	60 - 160
Sucralose	97.4	90.8	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A121604

Included Lab Sample IDs: 2437583, 2437584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	104	104	P/P	60 - 160
AMPA	87.6	99.7	P/P	60 - 160
Endothall	87.4	88.2	P/P	60 - 160
Endothall	88.2	98.8	P/P	60 - 160
Glufosinate	100	103	P/P	60 - 160
Glufosinate	103	97.7	P/P	60 - 160
Glyphosate	87.2	95.1	P/P	60 - 160
Glyphosate	95.8	102	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A121621

Included Lab Sample IDs: 2437583, 2437584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	78.4	73.4	P/P	50 - 150
2,4-D	83.7	109	P/P	50 - 150
2,4,5-T	74.3	75.3	P/P	50 - 150
Acetaminophen	101	101	P/P	60 - 160
Acetamiprid	107	108	P/P	50 - 150
Afidopyropen	103	110	P/P	50 - 150
Bentazon	102	99.2	P/P	50 - 160
Bentazon	112	141	P/P	50 - 160
Benzovindiflupyr	102	105	P/P	50 - 150
Carbamazepine	100	103	P/P	60 - 150
Clothianidin	113	109	P/P	60 - 150
Dinotefuran	108	108	P/P	50 - 150
Diuron	101	103	P/P	60 - 160
Fenuron	102	102	P/P	60 - 150
Fluridone	94.5	95.2	P/P	60 - 160
Hydrocodone	96.2	95.8	P/P	60 - 150
Ibuprofen	97.5	86.9	P/P	50 - 160
Imazapyr	93.8	95.3	P/P	50 - 150
Imidacloprid	94.9	95.2	P/P	60 - 150
Linuron	98.5	97.7	P/P	60 - 150
Mandestrobin	74.1	83.8	P/P	50 - 150
MCPP	83.5	87.0	P/P	50 - 150
Naproxen	85.2	66.0	P/P	50 - 160
Primidone	95.5	94.5	P/P	60 - 150
Pyraclostrobin	94.2	95.6	P/P	60 - 150
Silvex	94.2	94.2	P/P	50 - 150
Thiamethoxam	108	111	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A121621

Included Lab Sample IDs: 2437583, 2437584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tolfenpyrad	99.1	99.3	P/P	60 - 150
Triclopyr	79.9	87.9	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A121636

Included Lab Sample IDs: 2437585

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	98.9	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	100	100	P/P	90 - 110
Sodium	100	100	P/P	90 - 110
Strontium	98.2	100	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	101	101	P/P	90 - 110
Vanadium	101	101	P/P	90 - 110
Zinc	101	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A121637

Included Lab Sample IDs: 2437585

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.7	98.5	P/P	90 - 110
Antimony	94.0	95.5	P/P	90 - 110
Arsenic	100	98.7	P/P	90 - 110
Barium	98.1	98.1	P/P	90 - 110
Beryllium	97.2	95.3	P/P	90 - 110
Boron	102	100	P/P	90 - 110
Cadmium	100	102	P/P	90 - 110
Chromium	99.0	100	P/P	90 - 110
Cobalt	99.6	97.5	P/P	90 - 110
Copper	98.8	96.2	P/P	90 - 110
Lead	92.5	93.1	P/P	90 - 110
Manganese	99.5	101	P/P	90 - 110
Molybdenum	98.4	98.8	P/P	90 - 110
Nickel	99.5	96.7	P/P	90 - 110
Selenium	99.7	100	P/P	90 - 110
Silver	99.8	101	P/P	90 - 110
Thallium	98.5	99.1	P/P	90 - 110

Reference Method: EPA 8270E

Run ID: A121647

Included Lab Sample IDs: 2437558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	92.4		P	80 - 120
PCB-1260	99.6		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A121668
Included Lab Sample IDs: 2437558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	112		P	80 - 120
Alpha-BHC	96.6		P	80 - 120
Alpha-Chlordane	92.2		P	80 - 120
Beta-BHC	106		P	80 - 120
Beta-Cyfluthrin	82.5		P	80 - 120
Bifenthrin	89.7		P	80 - 120
Chlorothalonil	99.0		P	80 - 120
Cis-Nonachlor	112		P	80 - 120
Cypermethrin	83.5		P	80 - 120
Dacthal	97.6		P	80 - 120
DDD-p,p'	93.1		P	80 - 120
DDE-p,p'	101		P	80 - 120
DDT-p,p'	95.4		P	80 - 120
Delta-BHC	92.5		P	80 - 120
Deltamethrin	83.8		P	80 - 120
Dichlobenil	95.0		P	80 - 120
Dicofol	99.9		P	80 - 120
Dieldrin	95.6		P	80 - 120
Endosulfan I	108		P	80 - 120
Endosulfan II	93.4		P	80 - 120
Endosulfan Sulfate	106		P	80 - 120
Endrin	98.4		P	80 - 120
Endrin Aldehyde	123*		F	80 - 120
Endrin Ketone	110		P	80 - 120
Esfenvalerate	92.6		P	80 - 120
Ethalfuralin	94.0		P	80 - 120
Fenpropathrin	95.3		P	80 - 120
Gamma-BHC	94.4		P	80 - 120
Gamma-Chlordane	99.3		P	80 - 120
Heptachlor	101		P	80 - 120
Heptachlor Epoxide	96.8		P	80 - 120
Hexachlorobenzene	96.9		P	80 - 120
Kepone	112		P	80 - 120
Lambda-Cyhalothrin	82.9		P	80 - 120
Methoprene	91.7		P	80 - 120
Methoxychlor	87.9		P	80 - 120
MGK-264	89.3		P	80 - 120
Mirex	90.8		P	80 - 120
Oxychlordane	91.4		P	80 - 120
Permethrin	83.1		P	80 - 120
Phenothrin	77.1*		F	80 - 120
Piperonyl Butoxide	82.7		P	80 - 120
Prallethrin	90.2		P	80 - 120
Tau-Fluvalinate	85.8		P	80 - 120
Tetramethrin	80.9		P	80 - 120
Trans-Nonachlor	91.1		P	80 - 120
Triclosan Methyl	93.0		P	80 - 120
Trifluralin	97.7		P	80 - 120

Quality Assurance Report

Calibration Verification

Reference Method: EPA 8276
Run ID: A121670
Included Lab Sample IDs: 2437558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	98.6		P	80 - 120
Toxaphene	100		P	80 - 120

* 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			LCS	Precision SMP	MS
EPA 200.7 Rev. 4.4	Calcium	101	102	104				0.299
	Iron	107	105	105	105			0.239
	Magnesium	108	107	106	103			0.154
	Potassium	102	102	103	101			0.613
	Sodium	102	102	103				0.107
	Strontium	100	99.4	99.4	99.2			0.0281
	Tin	104	99.0	98.4	102			0.548
	Titanium	102	97.2	95.4	103			1.60
	Vanadium	103	102	101	104			0.808
	Zinc	101	100	99.2	102			0.948
EPA 200.8 Rev. 5.4	Aluminum	97.5	107	99.4	97.6			4.90
	Antimony	95.9	93.5	95.8	98.8			2.50
	Arsenic	98.0	96.8	99.0	101			2.18
	Barium	99.9	99.4	103	102			2.44
	Beryllium	93.0	94.7	94.8	95.8			0.0722
	Boron	102	102	104	102			1.34
	Cadmium	98.2	102	101	104			0.990
	Chromium	95.8	96.6	98.3	98.0			1.75
	Cobalt	96.2	95.5	96.7	96.9			1.24
	Copper	96.4	95.8	96.7	97.3			0.934
	Lead	92.4	93.1	95.0	94.5			1.91
	Manganese	97.3	95.3	99.2	98.6			1.70
	Molybdenum	97.1	96.4	98.9	100			2.48
	Nickel	95.8	97.1	97.2	95.5			0.0528
	Selenium	97.3	97.1	99.2	98.6			2.17
	Silver	111	109	110	109			1.44
	Thallium	101	103	105	104			2.00
	Aldrin	52.2	48.6	63.3				26.2
	Alpha-BHC	82.1	82.2	80.5				2.11
	Alpha-Chlordane	106	86.0	87.8				2.05
EPA 8270E	Beta-BHC	70.0	62.5	67.5				7.70
	Beta-Cyfluthrin	54.6	59.5	65.6				9.72
	Bifenthrin	47.0	41.4	51.8				22.2
	Chlorothalonil	125	123	142				14.4
	Cis-Nonachlor	88.7	70.3	81.9				15.2
	Cypermethrin	45.3	45.5	50.3				9.92
	Dacthal	83.2	87.1	101				14.7
	DDD-p,p'	58.8	60.0	66.3				9.99
	DDE-p,p'	66.1	49.5	56.1				12.5
	DDT-p,p'	66.7	65.0	73.9				12.8
	Delta-BHC	70.4	79.7	111				32.4
	Deltamethrin	56.1	49.9	66.1				28.0
	Dichlobenil	80.5	86.3	73.9				15.5
	Dicofol	87.3	92.2	104				12.5
	Dieldrin	68.3	63.5	64.5				1.51
	Endosulfan I	68.3	57.9	69.4				18.1
	Endosulfan II	80.1	80.1	81.9				2.21
	Endosulfan Sulfate	101	82.2	115				33.7
	Endrin	65.2	65.0	67.9				4.38
	Endrin Aldehyde	112	73.9	129				54.6
	Endrin Ketone	77.7	66.9	89.8				29.2
	Esfenvalerate	47.5	34.7	57.4				49.3
	Ethalfuralin	67.0	68.5	75.5				9.79
	Fenpropathrin	62.0	62.7	71.4				12.9

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
EPA 8270E	Gamma-BHC	91.4	91.5	81.7		11.3
	Gamma-Chlordane	61.0	54.5	73.9		30.3
	Heptachlor	86.6	73.9	74.6		0.914
	Heptachlor Epoxide	77.4	84.3	111		27.7
	Hexachlorobenzene	82.7	74.8	89.9		18.4
	Kepone	277	303	299		1.29
	Lambda-Cyhalothrin	44.0	39.6	47.6		18.4
	Methoprene	44.0	36.0	49.8		32.1
	Methoxychlor	65.2	68.4	81.6		17.5
	MGK-264	88.5	90.0	96.4		6.90
	Mirex	55.0	63.9	78.7		20.8
	Oxychlordane	71.2	66.5	89.1		29.1
	PCB-1016	71.3	79.1	79.0		0.0793
	PCB-1260	89.4	84.7	83.4		1.47
	Permethrin	46.3	41.8	50.2		18.4
	Phenothrin	39.3	53.9	62.8		15.3
	Piperonyl Butoxide	71.6	55.5	63.2		13.0
	Prallethrin	54.3	52.1	55.4		6.20
	Tau-Fluvalinate	50.7	51.3	74.2		36.5
	Tetramethrin	57.1	59.3	63.5		6.85
	Trans-Nonachlor	72.7	59.0	70.7		18.0
	Triclosan Methyl	67.4	66.4	77.0		14.8
	Trifluralin	69.3	65.5	76.1		14.9
EPA 8276	Chlordane	77.7	83.4	81.0		2.88
	Toxaphene	86.2	125	109		12.9
EPA 8321B	2,4-D	89.0	99.0	92.2		7.08
	2,4,5-T	96.3	98.0	97.7		0.337
	Acesulfame K	101	103	107		3.90
	Acetaminophen	79.0	68.0	69.8		2.67
	Acetamiprid	87.8	57.6	57.8		0.320
	Afidopyropen	58.0	73.6	67.2		8.99
	AMPA	110	59.1	60.2		1.99
	Bentazon	82.3	29.3	29.6		1.09
	Benzovindiflupyr	88.0	89.1	83.8		6.15
	Carbamazepine	84.4	57.5	55.4		3.76
	Clothianidin	95.1				5.36
	Dinotefuran	95.2	66.1	65.8		0.353
	Diuron	80.0	49.5	47.1		4.86
	Endothall	93.6	118	121		2.60
	Fenuron	89.2	41.8	40.8		2.64
	Fluridone	80.7	52.9	52.2		1.17
	Glufosinate	106	116	116		0.0698
	Glyphosate	97.5	77.6	76.9		0.959
	Hydrocodone	77.0	43.9	45.8		4.28
	Ibuprofen	71.0	56.6	61.4		8.14
	Imazapyr	80.6	90.2	72.9		11.9
	Imidacloprid	87.1				3.18
	Linuron	71.2	57.6	51.4		11.4
	Mandestrobin	87.4	55.3	70.8		24.6
	MCPP	111	108	100		7.91
	Naproxen	87.2	460	396		14.8
	Primidone	85.6	68.1	61.9		9.57
	Pyraclostrobin	70.6	72.1	65.5		7.87
	Silvex	99.2	97.3	92.0		5.61

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Sucralose	95.0	104	112			7.82
	Thiamethoxam	96.1	64.5	62.8			2.52
	Tolfenpyrad	65.3	52.7	58.6			10.4
	Triclopyr	102	107	97.8			8.76

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	2437585
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2437585
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2437558
EPA 8270E	PCBs in water matrices by GC/MS/MS	2437558
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2437558
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2437583, 2437584
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2437585

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	09/15/2023	09/18/2023 13:10	George D Taylor	09/19/2023 20:30	Samatha Luckman	2437585
EPA 200.8 Rev. 5.4	09/15/2023	09/18/2023 13:10	George D Taylor	09/19/2023 15:42	Emily M Philpot	2437585
EPA 8270E	09/15/2023	09/18/2023 08:00	Fe-Val Siddell	09/20/2023 02:30	Lipi Saha	2437558
	09/15/2023	09/18/2023 08:00	Fe-Val Siddell	09/21/2023 00:39	Vandana T. Nagar	2437558
EPA 8276	09/15/2023	09/18/2023 08:00	Fe-Val Siddell	09/20/2023 14:44	Arthur Maknenko	2437558
EPA 8321B	09/15/2023	09/15/2023 12:00	Hana Lee	09/15/2023 22:10	Tae K Lee	2437583
	09/15/2023	09/15/2023 12:00	Hana Lee	09/15/2023 22:38	Tae K Lee	2437584
	09/15/2023	09/15/2023 12:00	Hana Lee	09/18/2023 15:44	Tae K Lee	2437583
	09/15/2023	09/15/2023 12:00	Hana Lee	09/18/2023 16:10	Tae K Lee	2437584
	09/15/2023	09/15/2023 12:00	Hana Lee	09/18/2023 18:34	Hana Lee	2437584
	09/15/2023	09/18/2023 09:00	Hoor Shaik	09/19/2023 00:50	Juyoung Kim	2437583
	09/15/2023	09/18/2023 09:00	Hoor Shaik	09/19/2023 01:08	Juyoung Kim	2437584
	09/15/2023	09/18/2023 09:00	Hoor Shaik	09/19/2023 12:35	Juyoung Kim	2437584
SM 2340 B-2011	09/15/2023			09/19/2023 20:30	Samatha Luckman	2437585