

Chemical Analysis Report

NW-DIST-2022-04-05-01

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

Event Description: **Laurel Hill West**
Request ID: **RQ-2022-04-04-47**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-APR-2022 15:00

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Oak Creek Below Tommy Steele Road

Collection Date/Time: 04/04/2022 10:00

Field ID: G4NW0395

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316697	EPA 200.7 Rev. 4.4	Calcium	1.67		mg/L	P412008	
		Iron	1.70E+03		ug/L	P412008	
		Magnesium	0.89		mg/L	P412008	
		Potassium	0.44	I	mg/L	P412008	
		Sodium	2.0		mg/L	P412008	
		Strontium	9.0		ug/L	P412008	
		Tin	3.0	U	ug/L	P412008	
		Titanium	2.3	I	ug/L	P412008	
		Vanadium	2.0	U	ug/L	P412008	
		Zinc	5.0	U	ug/L	P412008	
	EPA 200.8 Rev. 5.4	Aluminum	199		ug/L	P412008	
		Antimony	0.050	U	ug/L	P412008	
		Arsenic	0.39		ug/L	P412008	
		Barium	20.3		ug/L	P412008	
		Beryllium	0.088		ug/L	P412008	
		Boron**	8.5		ug/L	P412008	
		Cadmium	0.020	U	ug/L	P412008	
		Chromium	0.40	U	ug/L	P412008	
		Cobalt	0.552		ug/L	P412008	
		Copper	0.40	U	ug/L	P412008	
		Lead	0.35	I	ug/L	P412008	
		Manganese	46.1		ug/L	P412008	
		Molybdenum	0.15	U	ug/L	P412008	
		Nickel	0.87	I	ug/L	P412008	
		Selenium	0.20	U	ug/L	P412008	
		Silver	0.010	U	ug/L	P412008	
		Thallium	0.10	U	ug/L	P412008	
	SM 2340 B-2011	Hardness	7.8		mg/L	P412008	

Sample Location: Baggett Creek Upstream of Keyser Mill Road

Collection Date/Time: 04/04/2022 11:30

Field ID: G4NW0335

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316694	EPA 8270E	Aldrin	0.67	U	ng/L	P411882	
		Alpha-BHC	0.10	U	ng/L	P411882	
		Alpha-Chlordane	0.21	U	ng/L	P411882	
		PCB-1016	2.1	U	ng/L	P411882	
		Beta-BHC	0.10	U	ng/L	P411882	MS
		PCB-1221	2.1	U	ng/L	P411882	
		Beta-Cyfluthrin**	1.3	U	ng/L	P411882	
		PCB-1232	2.1	U	ng/L	P411882	
		Bifenthrin**	0.51	U	ng/L	P411882	
		PCB-1242	2.1	U	ng/L	P411882	
		Carbophenothion	0.92	U	ng/L	P411882	
		PCB-1248	2.1	U	ng/L	P411882	
		Chlorothalonil	1.3	U	ng/L	P411882	MS
		PCB-1254	2.1	U	ng/L	P411882	
		Cis-Nonachlor**	0.21	U	ng/L	P411882	
		PCB-1260	2.1	U	ng/L	P411882	
		Cypermethrin	1.5	U	ng/L	P411882	
		Dacthal**	0.15	U	ng/L	P411882	
		DDD-p,p'	0.26	U	ng/L	P411882	
		DDE-p,p'	0.21	U	ng/L	P411882	
		DDT-p,p'	0.26	U	ng/L	P411882	
		Delta-BHC	0.41	U	ng/L	P411882	MS
		Deltamethrin**	1.3	U	ng/L	P411882	RPD
		Dichlobenil**	0.26	U	ng/L	P411882	
		Dicofol	1.3	U	ng/L	P411882	
		Dieldrin	0.41	U	ng/L	P411882	
		Endosulfan I	0.41	U	ng/L	P411882	
		Endosulfan II	0.41	U	ng/L	P411882	
		Endosulfan Sulfate	0.31	U	ng/L	P411882	
		Endrin	0.41	U	ng/L	P411882	
		Endrin Aldehyde	0.77	U	ng/L	P411882	
		Endrin Ketone	0.41	U	ng/L	P411882	
		Esfenvalerate**	0.77	U	ng/L	P411882	
		Ethalfuralin**	0.15	U	ng/L	P411882	
		Fenpropathrin**	0.26	U	ng/L	P411882	
		Gamma-BHC	0.13	U	ng/L	P411882	
		Gamma-Chlordane	0.21	U	ng/L	P411882	
		Heptachlor	0.21	U	ng/L	P411882	
		Heptachlor Epoxide	0.26	U	ng/L	P411882	
		Hexachlorobenzene	1.0	U	ng/L	P411882	
		Kepone**	5.1	U	ng/L	P411882	
		Lambda-Cyhalothrin**	0.77	U	ng/L	P411882	
		Methoprene**	0.77	U	ng/L	P411882	
		Methoxychlor	0.31	U	ng/L	P411882	

Field ID: G4NW0335

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316694	EPA 8270E	MGK-264**	0.21	U	ng/L	P411882	
		Mirex	0.72	U	ng/L	P411882	
		Oxychlordane**	0.31	U	ng/L	P411882	
		Permethrin	1.6	U	ng/L	P411882	
		Phenothrin**	0.92	U	ng/L	P411882	
		Piperonyl Butoxide**	0.15	U	ng/L	P411882	MS
		Prallethrin**	2.1	U	ng/L	P411882	
		Tau-Fluvalinate**	0.26	U	ng/L	P411882	
		Tetramethrin**	0.77	U	ng/L	P411882	
		Trans-Nonachlor**	0.21	U	ng/L	P411882	
		Triclosan Methyl**	0.15	U	ng/L	P411882	
		Trifluralin	0.21	U	ng/L	P411882	
		Chlordane	2.6	U	ng/L	P411882	
2316695	EPA 8321B	Toxaphene	15	U	ng/L	P411882	
		2,4-D	0.0020	U	ug/L	P412044	
		Acesulfame K	0.10	U	ug/L	P412075	
		2,4,5-T	0.0040	U	ug/L	P412044	
		AMPA	0.10	U	ug/L	P412075	
		Acetaminophen	0.0080	U	ug/L	P412044	
		Acetamiprid	0.0020	U	ug/L	P412044	
		Endothall	0.25	U	ug/L	P412075	
		Glufosinate	0.10	U	ug/L	P412075	
		Glyphosate	0.10	U	ug/L	P412075	
		Afidopyropen	0.0020	U	ug/L	P412044	
		Sucralose	0.16		ug/L	P412075	
		Bentazon	0.0039		ug/L	P412044	MS
		Benzovindiflupyr	0.0020	U	ug/L	P412044	
		Carbamazepine	8.0E-04	U	ug/L	P412044	
		Clothianidin	0.0020	U	ug/L	P412044	MS
		Dinotefuran	0.0020	U	ug/L	P412044	MS
		Diuron	0.0020	U	ug/L	P412044	
		Fenuron	0.016	U	ug/L	P412044	
		Fluridone	8.0E-04	U	ug/L	P412044	
		Imazapyr	0.0040	U	ug/L	P412044	
		Hydrocodone	0.0020	U	ug/L	P412044	
		Ibuprofen	0.020	U	ug/L	P412044	
		Imidacloprid	0.0052	I	ug/L	P412044	MS
		Linuron	0.0040	U	ug/L	P412044	
		Mandestrobin	0.0020	U	ug/L	P412044	
		MCP	0.0040	U	ug/L	P412044	
		Naproxen	0.0080	UJ	ug/L	P412044	CCV
		Primidone	0.0040	U	ug/L	P412044	MS, RPD
		Pyraclostrobin	0.0020	U	ug/L	P412044	
		Silvex	0.0040	U	ug/L	P412044	
		Thiamethoxam	0.0020	U	ug/L	P412044	MS

Field ID: G4NW0335

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2316695	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P412044	
		Triclopyr	0.0040	U	ug/L	P412044	
2316696	EPA 200.7 Rev. 4.4	Calcium	1.27		mg/L	P412008	
		Iron	460		ug/L	P412008	
		Magnesium	1.28		mg/L	P412008	
		Potassium	0.62	I	mg/L	P412008	
		Sodium	2.4		mg/L	P412008	
		Strontium	12.6		ug/L	P412008	
		Tin	3.0	U	ug/L	P412008	
		Titanium	1.0	I	ug/L	P412008	
		Vanadium	2.0	U	ug/L	P412008	
		Zinc	5.0	U	ug/L	P412008	
	EPA 200.8 Rev. 5.4	Aluminum	52		ug/L	P412008	
		Antimony	0.050	U	ug/L	P412008	
		Arsenic	0.21		ug/L	P412008	
		Barium	35.8		ug/L	P412008	
		Beryllium	0.014	I	ug/L	P412008	
		Boron**	10.3		ug/L	P412008	
		Cadmium	0.020	U	ug/L	P412008	
		Chromium	0.40	U	ug/L	P412008	
		Cobalt	0.169		ug/L	P412008	
		Copper	0.40	U	ug/L	P412008	
		Lead	0.20	U	ug/L	P412008	
		Manganese	9.08		ug/L	P412008	
		Molybdenum	0.15	U	ug/L	P412008	
		Nickel	0.50	U	ug/L	P412008	
		Selenium	0.20	U	ug/L	P412008	
		Silver	0.010	U	ug/L	P412008	
		Thallium	0.10	U	ug/L	P412008	
	SM 2340 B-2011	Hardness	8.4		mg/L	P412008	

Ref. Method and Comment:

EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412008

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: P412008

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: P411882

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
Carbophenothion	0.90	U	ng/L
Carbophenothion	0.90	U	ng/L
Chlorothalonil	1.2	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P411882

Component	Result	Code	Units
Chlorothalonil	1.2	U	ng/L
Cis-Nonachlor	0.20	U	ng/L
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'	0.25	U	ng/L
DDT-p,p'	0.25	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	0.40	U	ng/L
Endosulfan II	0.40	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endosulfan Sulfate	0.30	U	ng/L
Endrin	0.40	U	ng/L
Endrin	0.40	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	5.0	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P411882

Component	Result	Code	Units
Kepone	5.0	U	ng/L
Lambda-Cyhalothrin	0.75	U	ng/L
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	0.70	U	ng/L
Mirex	0.70	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: P411882

Component	Result	Code	Units
Chlordane	2.5	U	ng/L
Chlordane	2.5	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8276

Batch ID: P411882

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

Reference Method: EPA 8321B

Batch ID: P412044

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	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B

Batch ID: P412075

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	108		P	85 - 115
Iron	110		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	107		P	85 - 115
Sodium	108		P	85 - 115
Strontium	103		P	85 - 115
Tin	102		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	94.8		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	100		P	85 - 115
Barium	104		P	85 - 115
Beryllium	99.7		P	85 - 115
Boron	106		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	97.6		P	85 - 115
Cobalt	101		P	85 - 115
Copper	98.4		P	85 - 115
Lead	99.5		P	85 - 115
Manganese	98.2		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	99.0		P	85 - 115
Selenium	98.1		P	85 - 115
Silver	104		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 8270E

Batch ID: P411882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	50.7		P	10 - 93.0
Alpha-BHC	89.7		P	75 - 106
Alpha-Chlordane	73.5		P	50 - 109
Beta-BHC	115		P	36 - 138
Beta-Cyfluthrin	84.2		P	23 - 167
Bifenthrin	61.6		P	11 - 123
Carbophenothion	55.1		P	18 - 96.0
Chlorothalonil	170		P	27 - 190
Cis-Nonachlor	70.1		P	40 - 111
Cypermethrin	89.5		P	25 - 155
Dacthal	92.6		P	72 - 119
DDD-p,p'	74.1		P	47 - 108
DDE-p,p'	70.6		P	48 - 107
DDT-p,p'	70.5		P	49 - 111
Delta-BHC	123		P	54 - 138

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P411882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Deltamethrin	85.7		P	22 - 189
Dichlobenil	85.2		P	32 - 113
Dicofol	69.2		P	50 - 108
Dieldrin	77.4		P	56 - 110
Endosulfan I	79.2		P	60 - 105
Endosulfan II	84.2		P	50 - 120
Endosulfan Sulfate	96.4		P	55 - 121
Endrin	79.2		P	31 - 119
Endrin Aldehyde	90.5		P	36 - 116
Endrin Ketone	102		P	69 - 177
Esfenvalerate	80.3		P	10 - 179
Ethalfuralin	70.6		P	49 - 99.0
Fenpropathrin	74.8		P	35 - 119
Gamma-BHC	91.8		P	69 - 120
Gamma-Chlordane	68.7		P	45 - 107
Heptachlor	62.2		P	41 - 100
Heptachlor Epoxide	84.7		P	58 - 106
Hexachlorobenzene	66.3		P	39 - 100
Kepone	88.0		P	10 - 191
Lambda-Cyhalothrin	76.2		P	21 - 206
Methoprene	62.5		P	10 - 129
Methoxychlor	84.9		P	61 - 111
MGK-264	83.7		P	20 - 123
Mirex	55.8		P	10 - 182
Oxychlordane	70.5		P	39 - 110
PCB-1016	90.7		P	49 - 111
PCB-1260	94.4		P	42 - 116
Permethrin	78.7		P	26 - 152
Phenothrin	54.0		P	10 - 109
Piperonyl Butoxide	107		P	19 - 147
Prallethrin	70.8		P	14 - 109
Tau-Fluvalinate	74.4		P	16 - 134
Tetramethrin	85.3		P	10 - 125
Trans-Nonachlor	67.1		P	45 - 107
Triclosan Methyl	77.5		P	60 - 110
Trifluralin	71.2		P	44 - 101

Reference Method: EPA 8276
Batch ID: P411882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	87.0		P	61 - 118
Toxaphene	81.2		P	51 - 122

Reference Method: EPA 8321B
Batch ID: P412044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	79.6		P	40 - 150
2,4,5-T	76.5		P	40 - 150
Acetaminophen	67.3		P	30 - 150
Acetamiprid	93.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P412044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	74.6		P	40 - 150
Bentazon	147		P	30 - 150
Benzovindiflupyr	110		P	40 - 150
Carbamazepine	104		P	40 - 150
Clothianidin	139		P	40 - 150
Dinotefuran	118		P	40 - 150
Diuron	94.9		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	103		P	40 - 150
Hydrocodone	111		P	40 - 150
Ibuprofen	67.3		P	40 - 150
Imazapyr	101		P	40 - 150
Imidacloprid	112		P	40 - 150
Linuron	84.4		P	40 - 150
Mandestrobin	105		P	40 - 150
MCPP	94.0		P	40 - 150
Naproxen	96.4		P	40 - 150
Primidone	100		P	40 - 150
Pyraclostrobin	98.1		P	40 - 150
Silvex	52.4		P	40 - 150
Thiamethoxam	111		P	40 - 150
Tolfenpyrad	50.3		P	30 - 150
Triclopyr	66.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P412075

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	108		P	40 - 150
AMPA	131		P	40 - 150
Endothall	75.7		P	40 - 150
Glufosinate	122		P	40 - 150
Glyphosate	130		P	40 - 150
Sucralose	114		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315099	Calcium	102		P	80 - 120
2315099	Iron	109		P	80 - 120
2315099	Magnesium	103		P	80 - 120
2315099	Potassium	107		P	80 - 120
2315099	Sodium	104		P	80 - 120
2315099	Strontium	102		P	80 - 120
2315099	Tin	97.5		P	80 - 120
2315099	Titanium	102		P	80 - 120
2315099	Vanadium	96.2		P	80 - 120
2315099	Zinc	98.9		P	80 - 120
2316696	Calcium	107	104	P/P	80 - 120
2316696	Iron	109	108	P/P	80 - 120
2316696	Magnesium	108	106	P/P	80 - 120
2316696	Potassium	109	105	P/P	80 - 120
2316696	Sodium	110	107	P/P	80 - 120
2316696	Strontium	104	103	P/P	80 - 120
2316696	Tin	105	103	P/P	80 - 120
2316696	Titanium	105	103	P/P	80 - 120
2316696	Vanadium	97.7	96.9	P/P	80 - 120
2316696	Zinc	102	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2315099	Aluminum	104		P	80 - 120
2315099	Antimony	109		P	80 - 120
2315099	Arsenic	102		P	80 - 120
2315099	Barium	109		P	80 - 120
2315099	Beryllium	101		P	80 - 120
2315099	Boron	107		P	80 - 120
2315099	Cadmium	105		P	80 - 120
2315099	Chromium	102		P	80 - 120
2315099	Cobalt	102		P	80 - 120
2315099	Copper	98.5		P	80 - 120
2315099	Lead	101		P	80 - 120
2315099	Manganese	103		P	80 - 120
2315099	Molybdenum	105		P	80 - 120
2315099	Nickel	100		P	80 - 120
2315099	Selenium	99.2		P	80 - 120
2315099	Silver	106		P	80 - 120
2315099	Thallium	104		P	80 - 120
2316696	Aluminum	108	105	P/P	80 - 120
2316696	Antimony	105	105	P/P	80 - 120
2316696	Arsenic	101	99.0	P/P	80 - 120
2316696	Barium	106	108	P/P	80 - 120
2316696	Beryllium	98.4	99.3	P/P	80 - 120
2316696	Boron	109	107	P/P	80 - 120
2316696	Cadmium	102	103	P/P	80 - 120
2316696	Chromium	101	100	P/P	80 - 120
2316696	Cobalt	102	101	P/P	80 - 120
2316696	Copper	99.9	99.3	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316696	Lead	102	101	P/P	80 - 120
2316696	Manganese	102	101	P/P	80 - 120
2316696	Molybdenum	102	101	P/P	80 - 120
2316696	Nickel	101	100	P/P	80 - 120
2316696	Selenium	98.8	98.4	P/P	80 - 120
2316696	Silver	104	103	P/P	80 - 120
2316696	Thallium	104	104	P/P	80 - 120

Reference Method: EPA 8270E

Batch ID: P411882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316160	PCB-1016	69.0	82.6	P/P	46 - 110
2316160	PCB-1260	87.9	92.7	P/P	42 - 111
2316336	Aldrin	54.8	59.6	P/P	10 - 89.0
2316336	Alpha-BHC	90.1	91.8	P/P	71 - 105
2316336	Alpha-Chlordane	69.0	77.5	P/P	43 - 107
2316336	Beta-BHC	139	180	P/F	57 - 152
2316336	Beta-Cyfluthrin	69.1	99.1	P/P	29 - 186
2316336	Bifenthrin	69.4	65.6	P/P	19 - 119
2316336	Carbophenothion	48.7	61.4	P/P	19 - 107
2316336	Chlorothalonil	287	387	F/F	10 - 245
2316336	Cis-Nonachlor	52.8	62.9	P/P	36 - 110
2316336	Cypermethrin	78.3	107	P/P	24 - 169
2316336	Dacthal	85.3	93.8	P/P	62 - 115
2316336	DDD-p,p'	59.2	72.6	P/P	36 - 109
2316336	DDE-p,p'	61.9	72.0	P/P	30 - 114
2316336	DDT-p,p'	66.0	73.0	P/P	42 - 108
2316336	Delta-BHC	148	193	P/F	60 - 164
2316336	Deltamethrin	28.5	99.5	P/P	10 - 210
2316336	Dichlobenil	54.3	68.7	P/P	23 - 108
2316336	Dicofol	64.5	77.3	P/P	44 - 109
2316336	Dieldrin	67.7	80.0	P/P	37 - 119
2316336	Endosulfan I	74.7	86.0	P/P	52 - 105
2316336	Endosulfan II	67.1	81.8	P/P	35 - 127
2316336	Endosulfan Sulfate	80.4	97.3	P/P	39 - 130
2316336	Endrin	71.2	78.4	P/P	30 - 116
2316336	Endrin Aldehyde	70.7	59.2	P/P	20 - 110
2316336	Endrin Ketone	97.7	103	P/P	48 - 134
2316336	Esfenvalerate	78.4	105	P/P	10 - 199
2316336	Ethalfuralin	66.1	73.8	P/P	48 - 95.0
2316336	Fenpropathrin	65.1	85.6	P/P	37 - 121
2316336	Gamma-BHC	96.4	99.8	P/P	61 - 126
2316336	Gamma-Chlordane	65.4	77.4	P/P	39 - 105
2316336	Heptachlor	62.1	66.8	P/P	38 - 96.0
2316336	Heptachlor Epoxide	80.2	90.7	P/P	42 - 114
2316336	Hexachlorobenzene	73.1	71.5	P/P	39 - 93.0
2316336	Kepone	72.3	101	P/P	10 - 215
2316336	Lambda-Cyhalothrin	68.9	99.4	P/P	10 - 204
2316336	Methoprene	58.6	71.3	P/P	17 - 108
2316336	Methoxychlor	90.6	107	P/P	56 - 115
2316336	MGK-264	82.2	89.7	P/P	35 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E

Batch ID: P411882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316336	Mirex	45.9	56.3	P/P	10 - 178
2316336	Oxychlordane	71.7	75.1	P/P	47 - 91.0
2316336	Permethrin	91.2	91.9	P/P	27 - 170
2316336	Phenothrin	81.4	71.5	P/P	10 - 133
2316336	Piperonyl Butoxide	132	152	P/F	23 - 150
2316336	Prallethrin	69.3	76.3	P/P	21 - 113
2316336	Tau-Fluvalinate	65.5	93.8	P/P	16 - 158
2316336	Tetramethrin	95.2	119	P/P	22 - 132
2316336	Trans-Nonachlor	61.9	73.7	P/P	43 - 102
2316336	Triclosan Methyl	67.3	76.8	P/P	49 - 109
2316336	Trifluralin	66.5	74.6	P/P	48 - 93.0

Reference Method: EPA 8276

Batch ID: P411882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316160	Chlordane	81.9	92.7	P/P	55 - 128
2316160	Toxaphene	82.4	102	P/P	57 - 211

Reference Method: EPA 8321B

Batch ID: P412044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316353	2,4-D	101	84.0	P/P	40 - 150
2316353	2,4,5-T	89.2	84.2	P/P	40 - 150
2316353	Acetaminophen	116	111	P/P	30 - 150
2316353	Acetamiprid	111	105	P/P	40 - 150
2316353	Afidopyropen	88.4	68.8	P/P	40 - 150
2316353	Bentazon	154	133	F/P	30 - 150
2316353	Benzovindiflupyr	122	110	P/P	40 - 150
2316353	Carbamazepine	108	110	P/P	40 - 150
2316353	Clothianidin	199	193	F/F	40 - 150
2316353	Dinotefuran	161	155	F/F	40 - 150
2316353	Diuron	89.9	75.0	P/P	40 - 150
2316353	Fenuron	142	135	P/P	40 - 150
2316353	Fluridone	105	105	P/P	40 - 150
2316353	Hydrocodone	140	123	P/P	40 - 150
2316353	Ibuprofen	53.2	44.8	P/P	40 - 150
2316353	Imidacloprid	145	174	P/F	40 - 150
2316353	Linuron	89.0	70.1	P/P	40 - 150
2316353	Mandestrobin	113	104	P/P	40 - 150
2316353	MCPP	106	113	P/P	40 - 150
2316353	Naproxen	103	127	P/P	40 - 150
2316353	Primidone	160	95.3	F/P	40 - 150
2316353	Pyraclostrobin	104	101	P/P	40 - 150
2316353	Silvex	67.4	79.1	P/P	40 - 150
2316353	Thiamethoxam	182	180	F/F	40 - 150
2316353	Tolfenpyrad	44.0	59.1	P/P	30 - 150
2316353	Triclopyr	74.0	78.3	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P412075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2316438	Acesulfame K	111	116	P/P	40 - 150
2316438	AMPA	110	104	P/P	40 - 150
2316438	Endothall	74.5	72.1	P/P	40 - 150
2316438	Glufosinate	94.3	87.1	P/P	40 - 150
2316438	Glyphosate	106	103	P/P	40 - 150
2316438	Sucralose	86.4	88.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316696	Calcium	1.78	Spike	P	0 - 20
2316696	Iron	0.958	Spike	P	0 - 20
2316696	Magnesium	1.26	Spike	P	0 - 20
2316696	Potassium	2.68	Spike	P	0 - 20
2316696	Sodium	1.68	Spike	P	0 - 20
2316696	Strontium	0.961	Spike	P	0 - 20
2316696	Tin	1.99	Spike	P	0 - 20
2316696	Titanium	1.31	Spike	P	0 - 20
2316696	Vanadium	0.832	Spike	P	0 - 20
2316696	Zinc	0.534	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316696	Aluminum	2.75	Spike	P	0 - 20
2316696	Antimony	0.126	Spike	P	0 - 20
2316696	Arsenic	2.12	Spike	P	0 - 20
2316696	Barium	1.35	Spike	P	0 - 20
2316696	Beryllium	0.912	Spike	P	0 - 20
2316696	Boron	1.45	Spike	P	0 - 20
2316696	Cadmium	1.14	Spike	P	0 - 20
2316696	Chromium	0.893	Spike	P	0 - 20
2316696	Cobalt	0.731	Spike	P	0 - 20
2316696	Copper	0.536	Spike	P	0 - 20
2316696	Lead	0.534	Spike	P	0 - 20
2316696	Manganese	0.964	Spike	P	0 - 20
2316696	Molybdenum	0.806	Spike	P	0 - 20
2316696	Nickel	0.845	Spike	P	0 - 20
2316696	Selenium	0.367	Spike	P	0 - 20
2316696	Silver	1.07	Spike	P	0 - 20
2316696	Thallium	0.305	Spike	P	0 - 20

Reference Method: EPA 8270E

Batch ID: P411882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316160	PCB-1016	17.6	Spike	P	0 - 32
2316160	PCB-1260	4.89	Spike	P	0 - 31
2316336	Aldrin	8.38	Spike	P	0 - 37
2316336	Alpha-BHC	1.91	Spike	P	0 - 16
2316336	Alpha-Chlordane	11.6	Spike	P	0 - 28
2316336	Beta-BHC	25.5	Spike	P	0 - 32
2316336	Beta-Cyfluthrin	35.7	Spike	P	0 - 41
2316336	Bifenthrin	5.70	Spike	P	0 - 36
2316336	Carbophenothion	23.1	Spike	P	0 - 81
2316336	Chlorothalonil	29.6	Spike	P	0 - 54
2316336	Cis-Nonachlor	17.5	Spike	P	0 - 33
2316336	Cypermethrin	30.6	Spike	P	0 - 38

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P411882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316336	Dacthal	9.53	Spike	P	0 - 23
2316336	DDD-p,p'	20.3	Spike	P	0 - 35
2316336	DDE-p,p'	15.0	Spike	P	0 - 27
2316336	DDT-p,p'	10.1	Spike	P	0 - 31
2316336	Delta-BHC	26.2	Spike	P	0 - 30
2316336	Deltamethrin	111	Spike	F	0 - 76
2316336	Dichlobenil	23.4	Spike	P	0 - 33
2316336	Dicofol	18.0	Spike	P	0 - 24
2316336	Dieldrin	16.7	Spike	P	0 - 35
2316336	Endosulfan I	14.1	Spike	P	0 - 25
2316336	Endosulfan II	19.8	Spike	P	0 - 31
2316336	Endosulfan Sulfate	19.1	Spike	P	0 - 38
2316336	Endrin	9.68	Spike	P	0 - 53
2316336	Endrin Aldehyde	17.7	Spike	P	0 - 81
2316336	Endrin Ketone	5.60	Spike	P	0 - 33
2316336	Esfenvalerate	28.9	Spike	P	0 - 46
2316336	Ethalfuralin	10.9	Spike	P	0 - 22
2316336	Fenpropathrin	27.2	Spike	P	0 - 29
2316336	Gamma-BHC	3.49	Spike	P	0 - 17
2316336	Gamma-Chlordane	16.7	Spike	P	0 - 28
2316336	Heptachlor	7.18	Spike	P	0 - 28
2316336	Heptachlor Epoxide	12.4	Spike	P	0 - 23
2316336	Hexachlorobenzene	2.25	Spike	P	0 - 22
2316336	Kepone	33.2	Spike	P	0 - 61
2316336	Lambda-Cyhalothrin	36.2	Spike	P	0 - 52
2316336	Methoprene	19.6	Spike	P	0 - 38
2316336	Methoxychlor	16.9	Spike	P	0 - 29
2316336	MGK-264	8.72	Spike	P	0 - 41
2316336	Mirex	20.5	Spike	P	0 - 39
2316336	Oxychlordane	4.65	Spike	P	0 - 33
2316336	Permethrin	0.742	Spike	P	0 - 39
2316336	Phenothrin	12.9	Spike	P	0 - 52
2316336	Piperonyl Butoxide	14.1	Spike	P	0 - 91
2316336	Prallethrin	9.67	Spike	P	0 - 34
2316336	Tau-Fluvalinate	35.5	Spike	P	0 - 41
2316336	Tetramethrin	21.9	Spike	P	0 - 43
2316336	Trans-Nonachlor	17.3	Spike	P	0 - 31
2316336	Triclosan Methyl	13.1	Spike	P	0 - 24
2316336	Trifluralin	11.5	Spike	P	0 - 23

Reference Method: EPA 8276
Batch ID: P411882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316160	Chlordane	12.4	Spike	P	0 - 25
2316160	Toxaphene	21.7	Spike	P	0 - 24

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P412044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316353	2,4-D	18.2	Spike	P	0 - 30
2316353	2,4,5-T	5.78	Spike	P	0 - 30
2316353	Acetaminophen	4.02	Spike	P	0 - 30
2316353	Acetamiprid	5.78	Spike	P	0 - 30
2316353	Afidopyropen	25.0	Spike	P	0 - 30
2316353	Bentazon	9.06	Spike	P	0 - 30
2316353	Benzovindiflupyr	9.81	Spike	P	0 - 30
2316353	Carbamazepine	2.51	Spike	P	0 - 30
2316353	Clothianidin	3.07	Spike	P	0 - 30
2316353	Dinotefuran	3.02	Spike	P	0 - 30
2316353	Diuron	18.1	Spike	P	0 - 30
2316353	Fenuron	5.25	Spike	P	0 - 30
2316353	Fluridone	0.486	Spike	P	0 - 30
2316353	Hydrocodone	13.3	Spike	P	0 - 30
2316353	Ibuprofen	17.1	Spike	P	0 - 30
2316353	Imazapyr	6.11	Spike	P	0 - 30
2316353	Imidacloprid	18.1	Spike	P	0 - 30
2316353	Linuron	23.8	Spike	P	0 - 30
2316353	Mandestrobin	8.25	Spike	P	0 - 30
2316353	MCP	7.05	Spike	P	0 - 30
2316353	Naproxen	21.2	Spike	P	0 - 30
2316353	Primidone	50.5	Spike	F	0 - 30
2316353	Pyraclostrobin	2.65	Spike	P	0 - 30
2316353	Silvex	16.0	Spike	P	0 - 30
2316353	Thiamethoxam	1.41	Spike	P	0 - 30
2316353	Tolfenpyrad	29.2	Spike	P	0 - 30
2316353	Triclopyr	5.64	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P412075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2316438	Acesulfame K	4.66	Spike	P	0 - 30
2316438	AMPA	5.71	Spike	P	0 - 30
2316438	Endothall	3.27	Spike	P	0 - 30
2316438	Glufosinate	8.01	Spike	P	0 - 30
2316438	Glyphosate	3.11	Spike	P	0 - 30
2316438	Sucralose	2.62	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2316694

Field Sample ID: G4NW0335

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	64.0	P	38 - 115
EPA 8270E	Decachlorobiphenyl	52.8	P	31 - 118
EPA 8270E	Tetrachloro-m-xylene	64.0	P	29 - 98.0
EPA 8270E	Tetrachloro-m-xylene	40.9	P	28 - 96.0
EPA 8276	Decachlorobiphenyl	51.6	P	30 - 97.0
EPA 8276	PCNB	57.9	P	45 - 119

Lab Sample ID: 2316695

Field Sample ID: G4NW0335

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	81.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	115	P	30 - 160
EPA 8321B	Diuron-d6	68.3	P	30 - 160
EPA 8321B	Endothall-d6	75.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	102	P	30 - 160
EPA 8321B	Ibuprofen-d3	62.1	P	30 - 160
EPA 8321B	Primidone-d5	155	P	30 - 160
EPA 8321B	Sucralose-d6	92.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111371

Included Lab Sample IDs: 2316696, 2316697

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Aluminum	102	103	P/P	90 - 110
Antimony	102	105	P/P	90 - 110
Antimony	105	105	P/P	90 - 110
Arsenic	98.5	98.6	P/P	90 - 110
Arsenic	99.8	98.5	P/P	90 - 110
Barium	99.8	99.9	P/P	90 - 110
Barium	99.9	101	P/P	90 - 110
Beryllium	97.6	98.5	P/P	90 - 110
Beryllium	98.5	97.9	P/P	90 - 110
Boron	101	103	P/P	90 - 110
Boron	102	101	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	99.7	101	P/P	90 - 110
Chromium	96.4	99.7	P/P	90 - 110
Chromium	99.7	98.7	P/P	90 - 110
Cobalt	98.6	98.0	P/P	90 - 110
Copper	98.6	96.9	P/P	90 - 110
Copper	99.1	98.6	P/P	90 - 110
Lead	96.6	96.6	P/P	90 - 110
Lead	97.0	96.6	P/P	90 - 110
Manganese	96.7	99.5	P/P	90 - 110
Manganese	99.5	100	P/P	90 - 110
Molybdenum	98.8	98.5	P/P	90 - 110
Molybdenum	98.9	98.8	P/P	90 - 110
Nickel	98.1	97.7	P/P	90 - 110
Nickel	98.7	98.1	P/P	90 - 110
Selenium	101	98.7	P/P	90 - 110
Selenium	99.9	101	P/P	90 - 110
Silver	103	104	P/P	90 - 110
Silver	104	103	P/P	90 - 110
Thallium	97.2	96.6	P/P	90 - 110
Thallium	97.9	97.2	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A111409

Included Lab Sample IDs: 2316694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	95.4		P	80 - 120
Toxaphene	109		P	80 - 120

Reference Method: EPA 8321B

Run ID: A111413

Included Lab Sample IDs: 2316695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	123	149	P/P	60 - 160
Glufosinate	116	114	P/P	60 - 160
Glyphosate	115	129	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A111419
 Included Lab Sample IDs: 2316695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	85.3	83.0	P/P	60 - 160
Endothall	64.7	78.3	P/P	60 - 160
Sucralose	91.0	91.3	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A111420
 Included Lab Sample IDs: 2316696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	98.2	97.3	P/P	90 - 110

Reference Method: EPA 8270E
 Run ID: A111426
 Included Lab Sample IDs: 2316694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	103		P	80 - 120
PCB-1260	106		P	80 - 120

Reference Method: EPA 8270E
 Run ID: A111427
 Included Lab Sample IDs: 2316694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	100		P	80 - 120
Alpha-BHC	96.3		P	80 - 120
Alpha-Chlordane	101		P	80 - 120
Beta-BHC	101		P	80 - 120
Beta-Cyfluthrin	100		P	80 - 120
Bifenthrin	101		P	80 - 120
Carbophenothion	101		P	80 - 120
Chlorothalonil	83.0		P	80 - 120
Cis-Nonachlor	93.5		P	80 - 120
Cypermethrin	105		P	80 - 120
Dacthal	99.5		P	80 - 120
DDD-p,p'	102		P	80 - 120
DDE-p,p'	101		P	80 - 120
DDT-p,p'	99.3		P	80 - 120
Delta-BHC	103		P	80 - 120
Deltamethrin	101		P	80 - 120
Dichlobenil	103		P	80 - 120
Dicofol	96.5		P	80 - 120
Dieldrin	102		P	80 - 120
Endosulfan I	102		P	80 - 120
Endosulfan II	102		P	80 - 120
Endosulfan Sulfate	100		P	80 - 120
Endrin	104		P	80 - 120
Endrin Aldehyde	98.1		P	80 - 120
Endrin Ketone	101		P	80 - 120
Esfenvalerate	99.6		P	80 - 120
Ethalfuralin	99.3		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E
Run ID: A111427
Included Lab Sample IDs: 2316694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fenpropathrin	99.9		P	80 - 120
Gamma-BHC	94.5		P	80 - 120
Gamma-Chlordane	98.4		P	80 - 120
Heptachlor	99.2		P	80 - 120
Heptachlor Epoxide	98.0		P	80 - 120
Hexachlorobenzene	99.9		P	80 - 120
Kepone	89.9		P	80 - 120
Lambda-Cyhalothrin	104		P	80 - 120
Methoprene	101		P	80 - 120
Methoxychlor	98.4		P	80 - 120
MGK-264	101		P	80 - 120
Mirex	99.9		P	80 - 120
Oxychlordane	101		P	80 - 120
Permethrin	103		P	80 - 120
Phenothrin	102		P	80 - 120
Piperonyl Butoxide	93.6		P	80 - 120
Prallethrin	98.5		P	80 - 120
Tau-Fluvalinate	102		P	80 - 120
Tetramethrin	104		P	80 - 120
Trans-Nonachlor	97.9		P	80 - 120
Triclosan Methyl	103		P	80 - 120
Trifluralin	96.7		P	80 - 120

Reference Method: EPA 8321B
Run ID: A111428
Included Lab Sample IDs: 2316695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.0	86.8	P/P	50 - 150
2,4,5-T	96.0	99.0	P/P	50 - 150
Acetaminophen	102	110	P/P	60 - 160
Acetamiprid	104	102	P/P	50 - 150
Afidopyropen	99.4	102	P/P	50 - 150
Bentazon	103	115	P/P	50 - 160
Benzovindiflupyr	111	110	P/P	50 - 150
Carbamazepine	109	90.9	P/P	60 - 150
Clothianidin	121	135	P/P	60 - 150
Dinotefuran	99.9	95.2	P/P	50 - 150
Diuron	104	116	P/P	60 - 160
Fenuron	87.9	98.7	P/P	60 - 150
Fluridone	101	81.5	P/P	60 - 160
Hydrocodone	107	96.8	P/P	60 - 150
Ibuprofen	85.7	134	P/P	50 - 160
Imazapyr	93.0	100	P/P	50 - 150
Imidacloprid	78.2	100	P/P	60 - 150
Linuron	80.1	91.4	P/P	60 - 150
Mandestrobin	99.6	101	P/P	50 - 150
MCPP	88.7	83.3	P/P	50 - 150
Naproxen	99.2	174*	P/F	50 - 160
Primidone	136	86.5	P/P	60 - 150
Pyraclostrobin	105	96.9	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A111428

Included Lab Sample IDs: 2316695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silvex	84.1	86.1	P/P	50 - 150
Thiamethoxam	102	88.6	P/P	50 - 150
Tolfenpyrad	110	94.9	P/P	60 - 150
Triclopyr	104	101	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A111437

Included Lab Sample IDs: 2316696, 2316697

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.0	101	P/P	90 - 110
Iron	99.6	102	P/P	90 - 110
Magnesium	98.5	101	P/P	90 - 110
Potassium	101	103	P/P	90 - 110
Sodium	100	102	P/P	90 - 110
Strontium	102	99.1	P/P	90 - 110
Tin	99.2	98.5	P/P	90 - 110
Titanium	101	98.8	P/P	90 - 110
Vanadium	99.9	99.0	P/P	90 - 110
Zinc	101	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	108	102	107	104		1.78
	Iron	110	109	109	108		0.958
	Magnesium	109	103	108	106		1.26
	Potassium	107	107	109	105		2.68
	Sodium	108	104	110	107		1.68
	Strontium	103	102	104	103		0.961
	Tin	102	97.5	105	103		1.99
	Titanium	102	102	105	103		1.31
	Vanadium	94.8	96.2	97.7	96.9		0.832
	Zinc	100	98.9	102	102		0.534
EPA 200.8 Rev. 5.4	Aluminum	103	108	105	104		2.75
	Antimony	103	105	105	109		0.126
	Arsenic	100	101	99.0	102		2.12
	Barium	104	106	108	109		1.35
	Beryllium	99.7	98.4	99.3	101		0.912
	Boron	106	109	107	107		1.45
	Cadmium	101	102	103	105		1.14
	Chromium	97.6	101	100	102		0.893
	Cobalt	101	102	101	102		0.731
	Copper	98.4	99.9	99.3	98.5		0.536
	Lead	99.5	102	101	101		0.534
	Manganese	98.2	102	101	103		0.964
	Molybdenum	101	102	101	105		0.806
	Nickel	99.0	101	100	100		0.845
	Selenium	98.1	98.8	98.4	99.2		0.367
	Silver	104	104	103	106		1.07
	Thallium	102	104	104	104		0.305
	Aldrin	50.7	54.8	59.6			8.38
	Alpha-BHC	89.7	90.1	91.8			1.91
	Alpha-Chlordane	73.5	69.0	77.5			11.6
EPA 8270E	Beta-BHC	115	139	180			25.5
	Beta-Cyfluthrin	84.2	69.1	99.1			35.7
	Bifenthrin	61.6	69.4	65.6			5.70
	Carbophenothion	55.1	48.7	61.4			23.1
	Chlorothalonil	170	287	387			29.6
	Cis-Nonachlor	70.1	52.8	62.9			17.5
	Cypermethrin	89.5	78.3	107			30.6
	Dacthal	92.6	85.3	93.8			9.53
	DDD-p,p'	74.1	59.2	72.6			20.3
	DDE-p,p'	70.6	61.9	72.0			15.0
	DDT-p,p'	70.5	66.0	73.0			10.1
	Delta-BHC	123	148	193			26.2
	Deltamethrin	85.7	28.5	99.5			111
	Dichlobenil	85.2	54.3	68.7			23.4
	Dicofol	69.2	64.5	77.3			18.0
	Dieldrin	77.4	67.7	80.0			16.7
	Endosulfan I	79.2	74.7	86.0			14.1
	Endosulfan II	84.2	67.1	81.8			19.8
	Endosulfan Sulfate	96.4	80.4	97.3			19.1
	Endrin	79.2	71.2	78.4			9.68
	Endrin Aldehyde	90.5	70.7	59.2			17.7
	Endrin Ketone	102	97.7	103			5.60
	Esfenvalerate	80.3	78.4	105			28.9
	Ethalfuralin	70.6	66.1	73.8			10.9

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
EPA 8270E	Fenpropathrin	74.8	65.1	85.6		27.2
	Gamma-BHC	91.8	96.4	99.8		3.49
	Gamma-Chlordane	68.7	65.4	77.4		16.7
	Heptachlor	62.2	62.1	66.8		7.18
	Heptachlor Epoxide	84.7	80.2	90.7		12.4
	Hexachlorobenzene	66.3	73.1	71.5		2.25
	Kepone	88.0	72.3	101		33.2
	Lambda-Cyhalothrin	76.2	68.9	99.4		36.2
	Methoprene	62.5	58.6	71.3		19.6
	Methoxychlor	84.9	90.6	107		16.9
	MGK-264	83.7	82.2	89.7		8.72
	Mirex	55.8	45.9	56.3		20.5
	Oxychlordane	70.5	71.7	75.1		4.65
	PCB-1016	90.7	69.0	82.6		17.6
	PCB-1260	94.4	87.9	92.7		4.89
	Permethrin	78.7	91.2	91.9		0.742
	Phenothrin	54.0	81.4	71.5		12.9
	Piperonyl Butoxide	107	132	152		14.1
	Prallethrin	70.8	69.3	76.3		9.67
	Tau-Fluvalinate	74.4	65.5	93.8		35.5
	Tetramethrin	85.3	95.2	119		21.9
	Trans-Nonachlor	67.1	61.9	73.7		17.3
	Triclosan Methyl	77.5	67.3	76.8		13.1
	Trifluralin	71.2	66.5	74.6		11.5
EPA 8276	Chlordane	87.0	81.9	92.7		12.4
	Toxaphene	81.2	82.4	102		21.7
EPA 8321B	2,4-D	79.6	101	84.0		18.2
	2,4,5-T	76.5	89.2	84.2		5.78
	Acesulfame K	108	111	116		4.66
	Acetaminophen	67.3	116	111		4.02
	Acetamiprid	93.2	111	105		5.78
	Afidopyropen	74.6	88.4	68.8		25.0
	AMPA	131	110	104		5.71
	Bentazon	147	154	133		9.06
	Benzovindiflupyr	110	122	110		9.81
	Carbamazepine	104	108	110		2.51
	Clothianidin	139	199	193		3.07
	Dinotefuran	118	161	155		3.02
	Diuron	94.9	89.9	75.0		18.1
	Endothall	75.7	74.5	72.1		3.27
	Fenuron	112	142	135		5.25
	Fluridone	103	105	105		0.486
	Glufosinate	122	94.3	87.1		8.01
	Glyphosate	130	106	103		3.11
	Hydrocodone	111	140	123		13.3
	Ibuprofen	67.3	53.2	44.8		17.1
	Imazapyr	101				6.11
	Imidacloprid	112	145	174		18.1
	Linuron	84.4	89.0	70.1		23.8
	Mandestrobin	105	113	104		8.25
	MCPP	94.0	106	113		7.05
	Naproxen	96.4	103	127		21.2
	Primidone	100	160	95.3		50.5
	Pyraclostrobin	98.1	104	101		2.65

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS	MS		
EPA 8321B	Silvex	52.4	67.4	79.1		16.0
	Sucralose	114	86.4	88.7		2.62
	Thiamethoxam	111	182	180		1.41
	Tolfenpyrad	50.3	44.0	59.1		29.2
	Triclopyr	66.2	74.0	78.3		5.64

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	2316696, 2316697
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2316696, 2316697
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2316694
EPA 8270E	PCBs in water matrices by GC/MS/MS	2316694
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2316694
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2316695
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2316696, 2316697

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	04/05/2022	04/06/2022 12:30	Emily M Philpot	04/12/2022 21:47	Josef B Mick	2316696
	04/05/2022	04/06/2022 12:30	Emily M Philpot	04/12/2022 22:12	Josef B Mick	2316697
EPA 200.8 Rev. 5.4	04/05/2022	04/06/2022 12:30	Emily M Philpot	04/07/2022 13:16	Alexander Thompson	2316696
	04/05/2022	04/06/2022 12:30	Emily M Philpot	04/07/2022 15:02	Alexander Thompson	2316697
	04/05/2022	04/06/2022 12:30	Emily M Philpot	04/11/2022 14:32	Alexander Thompson	2316696
	04/05/2022	04/06/2022 08:00	Fe-Val Siddell	04/09/2022 00:15	Vandana T. Nagar	2316694
EPA 8270E	04/05/2022	04/06/2022 08:00	Fe-Val Siddell	04/09/2022 03:33	Vandana T. Nagar	2316694
EPA 8276	04/05/2022	04/06/2022 08:00	Fe-Val Siddell	04/09/2022 05:15	Arthur Maknenko	2316694
EPA 8321B	04/05/2022	04/07/2022 09:00	June Rhew	04/08/2022 04:13	Juyoung Kim	2316695
	04/05/2022	04/08/2022 12:00	Manjita Shrestha	04/08/2022 14:43	Manjita Shrestha	2316695
	04/05/2022	04/08/2022 12:00	Manjita Shrestha	04/09/2022 04:43	Manjita Shrestha	2316695
SM 2340 B-2011	04/05/2022			04/12/2022 21:47	Josef B Mick	2316696
	04/05/2022			04/12/2022 22:12	Josef B Mick	2316697