Chemical Analysis Report

SE-DIST-2023-01-05-01

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

Event Description: **Vero Beach**
Request ID: **RQ-2023-01-02-13**
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
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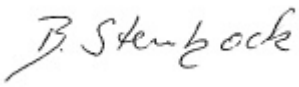
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 24-JAN-2023 15:10



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 @ 66th Ave **Collection Date/Time: 01/04/2023 11:30**

Field ID: G5SE0069 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2378294	EPA 8270E	Aldrin	0.72	U	ng/L	P424179	
		Alpha-BHC	0.11	U	ng/L	P424179	
		Alpha-Chlordane	0.22	U	ng/L	P424179	
		PCB-1016	2.2	U	ng/L	P424179	
		Beta-BHC	0.11	U	ng/L	P424179	
		PCB-1221	2.2	U	ng/L	P424179	
		Beta-Cyfluthrin	1.4	U	ng/L	P424179	
		PCB-1232	2.2	U	ng/L	P424179	
		Bifenthrin	0.55	U	ng/L	P424179	
		PCB-1242	2.2	U	ng/L	P424179	
		Carbophenothion	0.99	U	ng/L	P424179	
		PCB-1248	2.2	U	ng/L	P424179	
		Chlorothalonil	4.0	U	ng/L	P424179	
		PCB-1254	2.2	U	ng/L	P424179	
		Cis-Nonachlor	0.22	U	ng/L	P424179	
		PCB-1260	2.2	U	ng/L	P424179	
		Cypermethrin	1.7	U	ng/L	P424179	
		Dacthal	0.17	U	ng/L	P424179	
		DDD-p,p'	0.28	U	ng/L	P424179	
		DDE-p,p'	0.22	U	ng/L	P424179	
		DDT-p,p'	0.28	U	ng/L	P424179	
		Delta-BHC	0.44	U	ng/L	P424179	
		Deltamethrin	1.4	U	ng/L	P424179	
		Dichlobenil	0.28	U	ng/L	P424179	
		Dicofol	1.4	U	ng/L	P424179	
		Dieldrin	0.44	U	ng/L	P424179	
		Endosulfan I	0.44	U	ng/L	P424179	
		Endosulfan II	0.72	I	ng/L	P424179	
		Endosulfan Sulfate	0.33	U	ng/L	P424179	
		Endrin	0.44	U	ng/L	P424179	
		Endrin Aldehyde	0.83	U	ng/L	P424179	
		Endrin Ketone	0.44	U	ng/L	P424179	
		Esfenvalerate	0.83	U	ng/L	P424179	
		Ethalfluralin	0.17	U	ng/L	P424179	
		Fenpropathrin	0.28	U	ng/L	P424179	
		Gamma-BHC	0.14	U	ng/L	P424179	
		Gamma-Chlordane	0.22	U	ng/L	P424179	MS
		Heptachlor	0.22	U	ng/L	P424179	
		Heptachlor Epoxide	0.28	U	ng/L	P424179	
		Hexachlorobenzene**	1.1	U	ng/L	P424179	
		Kepone	5.5	U	ng/L	P424179	
		Lambda-Cyhalothrin	0.83	U	ng/L	P424179	
		Methoprene	0.83	U	ng/L	P424179	
		Methoxychlor	0.33	U	ng/L	P424179	

Field ID: G5SE0069 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2378294	EPA 8270E	MGK-264	0.22	U	ng/L	P424179	
		Mirex	0.39	U	ng/L	P424179	
		Oxychlordane	0.33	U	ng/L	P424179	
		Permethrin	1.8	U	ng/L	P424179	
		Phenothrin	0.99	U	ng/L	P424179	
		Piperonyl Butoxide	0.98		ng/L	P424179	
		Prallethrin	2.2	U	ng/L	P424179	MS
		Tau-Fluvalinate	0.28	U	ng/L	P424179	
		Tetramethrin	0.83	U	ng/L	P424179	MS
		Trans-Nonachlor	0.22	U	ng/L	P424179	
		Triclosan Methyl	0.17	U	ng/L	P424179	MS
		Trifluralin	0.22	U	ng/L	P424179	
	EPA 8276	Chlordane	2.2	U	ng/L	P424179	
		Toxaphene	17	U	ng/L	P424179	
2378296	EPA 8321B	2,4-D	0.19		ug/L	P424181	
		Acesulfame K	0.13	I	ug/L	P424152	
		2,4,5-T	0.0040	U	ug/L	P424181	
		AMPA	1.1		ug/L	P424152	
		Acetaminophen	0.0080	U	ug/L	P424181	
		Acetamiprid	0.0020	U	ug/L	P424181	
		Endothall	0.25	U	ug/L	P424152	
		Glufosinate	0.10	U	ug/L	P424152	
		Glyphosate	7.7		ug/L	P424152	
		Afidopyropen	0.0020	U	ug/L	P424181	
		Bentazon	0.018		ug/L	P424181	
		Sucralose	0.18		ug/L	P424152	
		Benzovindiflupyr	0.0020	U	ug/L	P424181	
		Carbamazepine	9.4E-04	I	ug/L	P424181	
		Clothianidin	0.0027	I	ug/L	P424181	
		Dinotefuran	0.0020	U	ug/L	P424181	
		Diuron	0.0020	U	ug/L	P424181	
		Fenuron	0.032	U	ug/L	P424181	
		Fluridone	0.0035		ug/L	P424181	
		Imazapyr	2.0		ug/L	P424181	
		Hydrocodone	0.0020	U	ug/L	P424181	
		Ibuprofen	0.20	U	ug/L	P424181	
		Imidacloprid	0.0095		ug/L	P424181	
		Linuron	0.0040	U	ug/L	P424181	
		Mandestrobin	0.0020	U	ug/L	P424181	
		MCPP	0.0040	U	ug/L	P424181	
		Naproxen	0.0080	U	ug/L	P424181	
		Primidone	0.0040	U	ug/L	P424181	
		Pyraclostrobin	0.0020	U	ug/L	P424181	
		Silvex	0.0040	U	ug/L	P424181	
		Thiamethoxam	0.0050	I	ug/L	P424181	

Field ID: G5SE0069 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2378296	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P424181	
		Triclopyr	0.0040	U	ug/L	P424181	

Sample Location: North Canal @ US1 **Collection Date/Time: 01/04/2023 11:50**

Field ID: G5SE0043 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2378295	EPA 8321B	2,4-D	140		ug/L	P424181	
		Acesulfame K	0.27	I	ug/L	P424152	
		2,4,5-T	0.0040	U	ug/L	P424181	
		AMPA	2.5		ug/L	P424152	
		Acetaminophen	0.0080	U	ug/L	P424181	
		Acetamiprid	0.0020	U	ug/L	P424181	
		Endothall	0.25	U	ug/L	P424152	
		Glufosinate	0.10	U	ug/L	P424152	
		Glyphosate	360		ug/L	P424152	
		Afidopyropen	0.0020	U	ug/L	P424181	
		Bentazon	0.044		ug/L	P424181	
		Sucralose	2.5		ug/L	P424152	
		Benzovindiflupyr	0.0020	U	ug/L	P424181	
		Carbamazepine	0.0021	I	ug/L	P424181	
		Clothianidin	0.0034	I	ug/L	P424181	
		Dinotefuran	0.0027	I	ug/L	P424181	
		Diuron	0.0046	I	ug/L	P424181	
		Fenuron	0.032	U	ug/L	P424181	
		Fluridone	0.012		ug/L	P424181	
		Imazapyr	47		ug/L	P424181	
		Hydrocodone	0.0020	U	ug/L	P424181	
		Ibuprofen	0.20	U	ug/L	P424181	
		Imidacloprid	0.0063	I	ug/L	P424181	
		Linuron	0.0040	U	ug/L	P424181	
		Mandestrobin	0.0020	U	ug/L	P424181	
		MCPP	0.0040	U	ug/L	P424181	
		Naproxen	0.0080	U	ug/L	P424181	
		Primidone	0.018		ug/L	P424181	
		Pyraclostrobin	0.0020	U	ug/L	P424181	
		Silvex	0.0040	U	ug/L	P424181	
		Thiamethoxam	0.012		ug/L	P424181	
		Tolfenpyrad	0.0020	U	ug/L	P424181	
		Triclopyr	0.0040	U	ug/L	P424181	

Ref. Method and Comment:
EPA 8321B: The surrogate 2,4-D-d3 recovery could not be assessed due to an elevated level of 2,4-D in the sample matrix.

Sample Location: South Canal @ US1 **Collection Date/Time: 01/04/2023 13:30**

Field ID: G5SE0044 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2378297	EPA 200.7 Rev. 4.4	Calcium	101		mg/L	P424231	
		Iron	740		ug/L	P424231	
		Magnesium	33.7		mg/L	P424231	
		Potassium	8.4		mg/L	P424231	
		Sodium	168		mg/L	P424231	
		Strontium	5.42E+03		ug/L	P424231	
		Tin	3.0	U	ug/L	P424231	
		Titanium	1.3	I	ug/L	P424231	
		Vanadium	2.6	I	ug/L	P424231	
		Zinc	5.9	I	ug/L	P424231	
	EPA 200.8 Rev. 5.4	Aluminum	177		ug/L	P424231	
		Antimony	0.082	I	ug/L	P424231	
		Arsenic	0.74		ug/L	P424231	
		Barium	44.2		ug/L	P424231	
		Beryllium	0.022	I	ug/L	P424231	
		Boron	108		ug/L	P424231	
		Cadmium	0.020	U	ug/L	P424231	
		Chromium	0.83	I	ug/L	P424231	
		Cobalt	0.145		ug/L	P424231	
		Copper	1.61		ug/L	P424231	
		Lead	0.20	U	ug/L	P424231	
		Manganese	14.3		ug/L	P424231	
		Molybdenum	0.85		ug/L	P424231	
		Nickel	0.59	I	ug/L	P424231	
		Selenium	0.27	I	ug/L	P424231	
		Silver	0.010	U	ug/L	P424231	
		Thallium	0.10	U	ug/L	P424231	
	SM 2340 B-2011	Hardness	390		mg/L	P424231	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424231

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: P424231

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: P424179

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	3.6	U	ng/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8270E
Batch ID: P424179

Component	Result	Code	Units
Chlorothalonil	3.6	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
Ethalfluralin	0.15	U	ng/L
Ethalfluralin	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: P424179

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	0.35	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: P424179

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8276
Batch ID: P424179

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

Reference Method: EPA 8321B
Batch ID: P424152

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: P424181

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	0.20	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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	98.9		P	85 - 115
Iron	99.0		P	85 - 115
Magnesium	99.8		P	85 - 115
Potassium	100		P	85 - 115
Sodium	103		P	85 - 115
Strontium	102		P	85 - 115
Tin	94.1		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	91.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.3		P	85 - 115
Antimony	99.4		P	85 - 115
Arsenic	102		P	85 - 115
Barium	100		P	85 - 115
Beryllium	93.2		P	85 - 115
Boron	96.4		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	95.3		P	85 - 115
Cobalt	97.4		P	85 - 115
Copper	99.0		P	85 - 115
Lead	91.4		P	85 - 115
Manganese	95.9		P	85 - 115
Molybdenum	97.4		P	85 - 115
Nickel	99.6		P	85 - 115
Selenium	99.6		P	85 - 115
Silver	101		P	85 - 115
Thallium	98.9		P	85 - 115

Reference Method: EPA 8270E
Batch ID: P424179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	59.9		P	10 - 92.0
Alpha-BHC	102		P	75 - 107
Alpha-Chlordane	98.2		P	50 - 108
Beta-BHC	131		P	36 - 138
Beta-Cyfluthrin	107		P	20 - 161
Bifenthrin	86.0		P	10 - 119
Carbophenothion	69.3		P	19 - 94.0
Chlorothalonil	146		P	26 - 186
Cis-Nonachlor	98.9		P	42 - 119
Cypermethrin	132		P	22 - 150
Dacthal	105		P	72 - 119
DDD-p,p'	97.0		P	45 - 107
DDE-p,p'	104		P	48 - 106
DDT-p,p'	67.3		P	48 - 110
Delta-BHC	134		P	54 - 140

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P424179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Deltamethrin	101		P	22 - 189
Dichlobenil	114		P	36 - 117
Dicofol	92.3		P	46 - 155
Dieldrin	108		P	54 - 110
Endosulfan I	103		P	59 - 105
Endosulfan II	113		P	51 - 118
Endosulfan Sulfate	114		P	57 - 121
Endrin	93.6		P	10 - 120
Endrin Aldehyde	86.3		P	34 - 118
Endrin Ketone	94.2		P	69 - 177
Esfenvalerate	112		P	23 - 168
Ethalfluralin	85.7		P	49 - 99.0
Fenpropathrin	113		P	34 - 117
Gamma-BHC	96.1		P	72 - 117
Gamma-Chlordane	87.8		P	43 - 106
Heptachlor	87.2		P	41 - 98.0
Heptachlor Epoxide	98.9		P	57 - 106
Hexachlorobenzene	78.9		P	36 - 99.0
Kepone	143		P	16 - 215
Lambda-Cyhalothrin	115		P	21 - 177
Methoprene	90.4		P	10 - 119
Methoxychlor	74.5		P	60 - 112
MGK-264	97.3		P	26 - 122
Mirex	94.2		P	10 - 169
Oxychlordane	92.5		P	43 - 105
PCB-1016	72.4		P	48 - 112
PCB-1260	62.8		P	44 - 118
Permethrin	113		P	24 - 148
Phenothrin	53.0		P	10 - 106
Piperonyl Butoxide	95.1		P	10 - 139
Prallethrin	105		P	17 - 109
Tau-Fluvalinate	81.1		P	13 - 131
Tetramethrin	103		P	10 - 132
Trans-Nonachlor	102		P	44 - 106
Triclosan Methyl	87.9		P	59 - 109
Trifluralin	96.6		P	44 - 101

Reference Method: EPA 8276
Batch ID: P424179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	66.8		P	61 - 116
Toxaphene	69.5		P	48 - 124

Reference Method: EPA 8321B
Batch ID: P424152

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	107		P	40 - 150
AMPA	88.3		P	40 - 150
Endothall	100		P	40 - 150
Glufosinate	84.1		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P424152

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	81.2		P	40 - 150
Sucralose	124		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P424181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	103		P	40 - 150
2,4,5-T	74.4		P	40 - 150
Acetaminophen	82.6		P	30 - 150
Acetamiprid	74.0		P	40 - 150
Afidopyropen	59.2		P	30 - 150
Bentazon	86.8		P	30 - 150
Benzovindiflupyr	72.3		P	40 - 150
Carbamazepine	69.8		P	40 - 150
Clothianidin	90.3		P	40 - 150
Dinotefuran	85.2		P	40 - 150
Diuron	62.1		P	40 - 150
Fenuron	88.9		P	40 - 150
Fluridone	80.0		P	40 - 150
Hydrocodone	76.9		P	40 - 150
Ibuprofen	91.1		P	40 - 150
Imazapyr	81.4		P	40 - 150
Imidacloprid	77.8		P	40 - 150
Linuron	62.4		P	40 - 150
Mandestrobin	81.3		P	40 - 150
MCPP	94.2		P	40 - 150
Naproxen	82.5		P	40 - 150
Primidone	85.0		P	40 - 150
Pyraclostrobin	67.1		P	40 - 150
Silvex	101		P	40 - 150
Thiamethoxam	80.6		P	40 - 150
Tolfenpyrad	34.5		P	30 - 150
Triclopyr	79.6		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378034	Calcium	97.6		P	80 - 120
2378034	Iron	102	99.7	P/P	80 - 120
2378034	Magnesium	102	99.7	P/P	80 - 120
2378034	Potassium	102	102	P/P	80 - 120
2378034	Sodium	103	102	P/P	80 - 120
2378034	Strontium	104	103	P/P	80 - 120
2378034	Tin	101	98.3	P/P	80 - 120
2378034	Titanium	105	101	P/P	80 - 120
2378034	Vanadium	106	103	P/P	80 - 120
2378034	Zinc	93.3	90.0	P/P	80 - 120
2378383	Calcium	96.6		P	80 - 120
2378383	Iron	98.9		P	80 - 120
2378383	Magnesium	98.2		P	80 - 120
2378383	Potassium	101		P	80 - 120
2378383	Sodium	101		P	80 - 120
2378383	Strontium	102		P	80 - 120
2378383	Tin	97.0		P	80 - 120
2378383	Titanium	105		P	80 - 120
2378383	Vanadium	114		P	80 - 120
2378383	Zinc	90.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378034	Aluminum	96.2	96.3	P/P	80 - 120
2378034	Antimony	103	103	P/P	80 - 120
2378034	Arsenic	103	103	P/P	80 - 120
2378034	Barium	102	101	P/P	80 - 120
2378034	Beryllium	94.0	94.6	P/P	80 - 120
2378034	Boron	100	98.2	P/P	80 - 120
2378034	Cadmium	105	104	P/P	80 - 120
2378034	Chromium	98.2	96.6	P/P	80 - 120
2378034	Cobalt	98.5	96.5	P/P	80 - 120
2378034	Copper	101	98.7	P/P	80 - 120
2378034	Lead	93.7	93.6	P/P	80 - 120
2378034	Manganese	100	98.4	P/P	80 - 120
2378034	Molybdenum	101	101	P/P	80 - 120
2378034	Nickel	102	100	P/P	80 - 120
2378034	Selenium	101	101	P/P	80 - 120
2378034	Silver	102	101	P/P	80 - 120
2378034	Thallium	102	102	P/P	80 - 120
2378383	Aluminum	97.6		P	80 - 120
2378383	Antimony	105		P	80 - 120
2378383	Arsenic	104		P	80 - 120
2378383	Barium	102		P	80 - 120
2378383	Beryllium	94.7		P	80 - 120
2378383	Boron	97.0		P	80 - 120
2378383	Cadmium	105		P	80 - 120
2378383	Chromium	98.8		P	80 - 120
2378383	Cobalt	97.9		P	80 - 120
2378383	Copper	97.8		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378383	Lead	92.8		P	80 - 120
2378383	Manganese	101		P	80 - 120
2378383	Molybdenum	103		P	80 - 120
2378383	Nickel	99.8		P	80 - 120
2378383	Selenium	102		P	80 - 120
2378383	Silver	101		P	80 - 120
2378383	Thallium	101		P	80 - 120

Reference Method: EPA 8270E
Batch ID: P424179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378252	Aldrin	51.4	64.6	P/P	20 - 82.0
2378252	Alpha-BHC	101	93.0	P/P	71 - 109
2378252	Alpha-Chlordane	72.7	69.0	P/P	42 - 106
2378252	Beta-BHC	114	121	P/P	69 - 180
2378252	Beta-Cyfluthrin	87.0	89.2	P/P	18 - 175
2378252	Bifenthrin	68.1	76.1	P/P	21 - 128
2378252	Carbophenothion	74.1	79.7	P/P	10 - 126
2378252	Chlorothalonil	95.5	77.2	P/P	10 - 300
2378252	Cis-Nonachlor	43.3	49.4	P/P	34 - 106
2378252	Cypermethrin	97.1	115	P/P	22 - 158
2378252	Dacthal	90.4	103	P/P	54 - 116
2378252	DDD-p,p'	55.6	67.8	P/P	34 - 107
2378252	DDE-p,p'	98.7	91.8	P/P	33 - 110
2378252	DDT-p,p'	69.8	65.4	P/P	50 - 122
2378252	Delta-BHC	128	128	P/P	77 - 193
2378252	Deltamethrin	97.0	102	P/P	10 - 195
2378252	Dichlobenil	95.6	90.7	P/P	25 - 113
2378252	Dicofol	59.7	57.3	P/P	38 - 247
2378252	Dieldrin	104	97.3	P/P	45 - 118
2378252	Endosulfan I	82.2	90.0	P/P	51 - 106
2378252	Endosulfan II	89.8	107	P/P	37 - 122
2378252	Endosulfan Sulfate	101	86.3	P/P	43 - 132
2378252	Endrin	97.3	94.0	P/P	29 - 101
2378252	Endrin Aldehyde	36.4	46.4	P/P	19 - 110
2378252	Endrin Ketone	61.4	82.1	P/P	60 - 140
2378252	Esfenvalerate	123	115	P/P	26 - 199
2378252	Ethalfluralin	79.1	81.7	P/P	45 - 99.0
2378252	Fenpropathrin	63.7	84.5	P/P	35 - 120
2378252	Gamma-BHC	104	114	P/P	63 - 128
2378252	Gamma-Chlordane	33.3	48.3	F/P	40 - 104
2378252	Heptachlor	83.7	91.5	P/P	36 - 97.0
2378252	Heptachlor Epoxide	77.4	91.5	P/P	49 - 184
2378252	Hexachlorobenzene	75.7	66.8	P/P	39 - 96.0
2378252	Kepone	62.6	77.8	P/P	10 - 217
2378252	Lambda-Cyhalothrin	80.1	80.3	P/P	21 - 193
2378252	Methoprene	97.3	90.8	P/P	20 - 106
2378252	Methoxychlor	91.3	96.4	P/P	53 - 118
2378252	MGK-264	103	112	P/P	40 - 118
2378252	Mirex	68.8	68.2	P/P	26 - 92.0
2378252	Oxychlordane	68.0	77.6	P/P	44 - 99.0

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P424179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378252	Permethrin	94.4	86.3	P/P	33 - 182
2378252	Phenothrin	43.4	44.3	P/P	10 - 129
2378252	Piperonyl Butoxide	131	138	P/P	10 - 211
2378252	Prallethrin	106	114	P/F	24 - 113
2378252	Tau-Fluvalinate	90.1	75.8	P/P	14 - 149
2378252	Tetramethrin	161	171	F/F	17 - 151
2378252	Trans-Nonachlor	68.8	82.3	P/P	42 - 102
2378252	Triclosan Methyl	43.2	49.2	F/P	48 - 108
2378252	Trifluralin	76.4	84.0	P/P	47 - 96.0
2378476	PCB-1016	76.6	82.0	P/P	46 - 111
2378476	PCB-1260	65.9	68.3	P/P	45 - 114

Reference Method: EPA 8276
Batch ID: P424179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378476	Chlordane	66.6	71.7	P/P	53 - 126
2378476	Toxaphene	62.1	78.4	P/P	56 - 211

Reference Method: EPA 8321B
Batch ID: P424152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378136	Acesulfame K	115	116	P/P	40 - 150
2378136	AMPA	81.7	80.4	P/P	40 - 150
2378136	Endothall	110	110	P/P	40 - 150
2378136	Glufosinate	99.6	87.3	P/P	40 - 150
2378136	Glyphosate	87.6	87.6	P/P	40 - 150
2378136	Sucralose	118	113	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P424181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378240	2,4-D	110	127	P/P	40 - 150
2378240	2,4,5-T	86.5	100	P/P	40 - 150
2378240	Acetaminophen	102	109	P/P	30 - 150
2378240	Acetamiprid	106	116	P/P	40 - 150
2378240	Afidopyropen	82.4	87.7	P/P	30 - 150
2378240	Bentazon	72.5	69.9	P/P	30 - 150
2378240	Benzovindiflupyr	76.6	83.7	P/P	40 - 150
2378240	Carbamazepine	72.7	78.5	P/P	40 - 150
2378240	Clothianidin	110	125	P/P	40 - 150
2378240	Dinotefuran	105	115	P/P	40 - 150
2378240	Diuron	57.2	59.6	P/P	40 - 150
2378240	Fenuron	92.2	94.3	P/P	40 - 150
2378240	Fluridone	74.4	87.7	P/P	40 - 150
2378240	Hydrocodone	103	104	P/P	40 - 150
2378240	Ibuprofen	81.5	101	P/P	40 - 150
2378240	Imazapyr	104	121	P/P	40 - 150
2378240	Imidacloprid	116	142	P/P	40 - 150
2378240	Linuron	71.2	69.3	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P424181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2378240	Mandestrobin	90.5	97.5	P/P	40 - 150
2378240	MCPP	109	118	P/P	40 - 150
2378240	Naproxen	98.9	80.8	P/P	40 - 150
2378240	Primidone	95.6	106	P/P	40 - 150
2378240	Pyraclostrobin	71.9	80.9	P/P	40 - 150
2378240	Silvex	107	118	P/P	40 - 150
2378240	Thiamethoxam	101	111	P/P	40 - 150
2378240	Tolfenpyrad	43.5	43.9	P/P	30 - 150
2378240	Triclopyr	87.5	114	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P424231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378034	Calcium	0.302	Spike	P	0 - 20
2378034	Iron	2.23	Spike	P	0 - 20
2378034	Magnesium	2.03	Spike	P	0 - 20
2378034	Potassium	0.534	Spike	P	0 - 20
2378034	Sodium	0.523	Spike	P	0 - 20
2378034	Strontium	0.614	Spike	P	0 - 20
2378034	Tin	2.75	Spike	P	0 - 20
2378034	Titanium	3.64	Spike	P	0 - 20
2378034	Vanadium	3.27	Spike	P	0 - 20
2378034	Zinc	3.58	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P424231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378034	Aluminum	0.0446	Spike	P	0 - 20
2378034	Antimony	0.851	Spike	P	0 - 20
2378034	Arsenic	0.0981	Spike	P	0 - 20
2378034	Barium	0.851	Spike	P	0 - 20
2378034	Beryllium	0.583	Spike	P	0 - 20
2378034	Boron	1.87	Spike	P	0 - 20
2378034	Cadmium	1.54	Spike	P	0 - 20
2378034	Chromium	1.45	Spike	P	0 - 20
2378034	Cobalt	2.08	Spike	P	0 - 20
2378034	Copper	1.92	Spike	P	0 - 20
2378034	Lead	0.160	Spike	P	0 - 20
2378034	Manganese	1.88	Spike	P	0 - 20
2378034	Molybdenum	0.188	Spike	P	0 - 20
2378034	Nickel	2.14	Spike	P	0 - 20
2378034	Selenium	0.493	Spike	P	0 - 20
2378034	Silver	1.12	Spike	P	0 - 20
2378034	Thallium	0.271	Spike	P	0 - 20

Reference Method: EPA 8270E
Batch ID: P424179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378252	Aldrin	22.8	Spike	P	0 - 41
2378252	Alpha-BHC	8.65	Spike	P	0 - 25
2378252	Alpha-Chlordane	4.83	Spike	P	0 - 33
2378252	Beta-BHC	5.51	Spike	P	0 - 36
2378252	Beta-Cyfluthrin	2.47	Spike	P	0 - 42
2378252	Bifenthrin	11.1	Spike	P	0 - 53
2378252	Carbophenothion	7.35	Spike	P	0 - 49
2378252	Chlorothalonil	21.2	Spike	P	0 - 71
2378252	Cis-Nonachlor	13.2	Spike	P	0 - 29
2378252	Cypermethrin	16.7	Spike	P	0 - 40
2378252	Dacthal	12.7	Spike	P	0 - 26
2378252	DDD-p,p'	19.8	Spike	P	0 - 39

Quality Assurance Report
Precision

Reference Method: EPA 8270E
Batch ID: P424179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378252	DDE-p,p'	7.31	Spike	P	0 - 33
2378252	DDT-p,p'	6.63	Spike	P	0 - 40
2378252	Delta-BHC	0.161	Spike	P	0 - 37
2378252	Deltamethrin	5.21	Spike	P	0 - 100
2378252	Dichlobenil	5.22	Spike	P	0 - 40
2378252	Dicofol	4.16	Spike	P	0 - 31
2378252	Dieldrin	6.53	Spike	P	0 - 27
2378252	Endosulfan I	9.09	Spike	P	0 - 23
2378252	Endosulfan II	17.5	Spike	P	0 - 28
2378252	Endosulfan Sulfate	15.5	Spike	P	0 - 38
2378252	Endrin	3.48	Spike	P	0 - 63
2378252	Endrin Aldehyde	24.2	Spike	P	0 - 60
2378252	Endrin Ketone	28.8	Spike	P	0 - 37
2378252	Esfenvalerate	6.93	Spike	P	0 - 52
2378252	Ethalfluralin	3.27	Spike	P	0 - 23
2378252	Fenpropathrin	28.1	Spike	P	0 - 32
2378252	Gamma-BHC	8.90	Spike	P	0 - 17
2378252	Gamma-Chlordane	36.9	Spike	P	0 - 40
2378252	Heptachlor	8.89	Spike	P	0 - 29
2378252	Heptachlor Epoxide	16.7	Spike	P	0 - 25
2378252	Hexachlorobenzene	12.4	Spike	P	0 - 36
2378252	Kepone	21.7	Spike	P	0 - 93
2378252	Lambda-Cyhalothrin	0.316	Spike	P	0 - 55
2378252	Methoprene	6.91	Spike	P	0 - 53
2378252	Methoxychlor	5.45	Spike	P	0 - 29
2378252	MGK-264	8.06	Spike	P	0 - 35
2378252	Mirex	0.882	Spike	P	0 - 46
2378252	Oxychlordane	13.1	Spike	P	0 - 29
2378252	Permethrin	7.45	Spike	P	0 - 44
2378252	Phenothrin	1.97	Spike	P	0 - 56
2378252	Piperonyl Butoxide	4.85	Spike	P	0 - 100
2378252	Prallethrin	7.03	Spike	P	0 - 42
2378252	Tau-Fluvalinate	17.2	Spike	P	0 - 54
2378252	Tetramethrin	6.07	Spike	P	0 - 51
2378252	Trans-Nonachlor	17.8	Spike	P	0 - 37
2378252	Triclosan Methyl	13.0	Spike	P	0 - 31
2378252	Trifluralin	9.49	Spike	P	0 - 30
2378476	PCB-1016	6.81	Spike	P	0 - 32
2378476	PCB-1260	3.64	Spike	P	0 - 31

Reference Method: EPA 8276
Batch ID: P424179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378476	Chlordane	7.36	Spike	P	0 - 25
2378476	Toxaphene	23.2	Spike	P	0 - 26

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P424152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378136	Acesulfame K	0.746	Spike	P	0 - 30
2378136	AMPA	1.45	Spike	P	0 - 30
2378136	Endothall	0.207	Spike	P	0 - 30
2378136	Glufosinate	13.1	Spike	P	0 - 30
2378136	Glyphosate	0.0596	Spike	P	0 - 30
2378136	Sucralose	2.99	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P424181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2378240	2,4-D	13.8	Spike	P	0 - 30
2378240	2,4,5-T	14.9	Spike	P	0 - 30
2378240	Acetaminophen	6.27	Spike	P	0 - 30
2378240	Acetamiprid	8.87	Spike	P	0 - 30
2378240	Afidopyropen	6.25	Spike	P	0 - 30
2378240	Bentazon	2.47	Spike	P	0 - 30
2378240	Benzovindiflupyr	8.83	Spike	P	0 - 30
2378240	Carbamazepine	7.74	Spike	P	0 - 30
2378240	Clothianidin	12.8	Spike	P	0 - 30
2378240	Dinotefuran	8.73	Spike	P	0 - 30
2378240	Diuron	3.99	Spike	P	0 - 30
2378240	Fenuron	2.29	Spike	P	0 - 30
2378240	Fluridone	15.1	Spike	P	0 - 30
2378240	Hydrocodone	1.78	Spike	P	0 - 30
2378240	Ibuprofen	21.5	Spike	P	0 - 30
2378240	Imazapyr	10.4	Spike	P	0 - 30
2378240	Imidacloprid	20.0	Spike	P	0 - 30
2378240	Linuron	2.63	Spike	P	0 - 30
2378240	Mandestrobin	7.42	Spike	P	0 - 30
2378240	MCPP	7.82	Spike	P	0 - 30
2378240	Naproxen	20.2	Spike	P	0 - 30
2378240	Primidone	10.3	Spike	P	0 - 30
2378240	Pyraclostrobin	11.8	Spike	P	0 - 30
2378240	Silvex	9.93	Spike	P	0 - 30
2378240	Thiamethoxam	9.46	Spike	P	0 - 30
2378240	Tolfenpyrad	0.998	Spike	P	0 - 30
2378240	Triclopyr	26.1	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2378294
Field Sample ID: G5SE0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	76.0	P	29 - 130
EPA 8270E	Decachlorobiphenyl	79.8	P	30 - 118
EPA 8270E	Tetrachloro-m-xylene	50.3	P	29 - 104
EPA 8270E	Tetrachloro-m-xylene	55.1	P	30 - 97.0
EPA 8276	Decachlorobiphenyl	65.8	P	30 - 101
EPA 8276	PCNB	70.9	P	48 - 121

Lab Sample ID: 2378295
Field Sample ID: G5SE0043

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	101	P	30 - 160
EPA 8321B	Carbamazepine-d10	56.7	P	30 - 160
EPA 8321B	Diuron-d6	52.9	P	30 - 160
EPA 8321B	Endothall-d6	58.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	85.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	84.7	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	70.9	P	30 - 160

Lab Sample ID: 2378296
Field Sample ID: G5SE0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	106	P	30 - 160
EPA 8321B	Acetaminophen-d4	101	P	30 - 160
EPA 8321B	Carbamazepine-d10	64.4	P	30 - 160
EPA 8321B	Diuron-d6	52.3	P	30 - 160
EPA 8321B	Endothall-d6	58.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	64.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	76.3	P	30 - 160
EPA 8321B	Primidone-d5	104	P	30 - 160
EPA 8321B	Sucralose-d6	68.6	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A116802
Included Lab Sample IDs: 2378295, 2378296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	110	P/P	60 - 160
Sucralose	123	113	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A116805
Included Lab Sample IDs: 2378295, 2378296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	83.7	85.0	P/P	60 - 160
Endothall	87.3	63.3	P/P	60 - 160
Glufosinate	85.0	81.8	P/P	60 - 160
Glyphosate	86.7	88.5	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A116821
Included Lab Sample IDs: 2378295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Glyphosate	140	92.5	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A116846
Included Lab Sample IDs: 2378295, 2378296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	111	P/P	50 - 150
2,4-D	114	121	P/P	50 - 150
2,4,5-T	111	98.6	P/P	50 - 150
Acetaminophen	122	120	P/P	60 - 160
Acetamiprid	136	132	P/P	50 - 150
Afidopyropen	128	115	P/P	50 - 150
Bentazon	138	144	P/P	50 - 160
Benzovindiflupyr	104	117	P/P	50 - 150
Carbamazepine	110	122	P/P	60 - 150
Clothianidin	132	140	P/P	60 - 150
Dinotefuran	120	122	P/P	50 - 150
Diuron	120	132	P/P	60 - 160
Fenuron	118	119	P/P	60 - 150
Fluridone	123	126	P/P	60 - 160
Hydrocodone	119	125	P/P	60 - 150
Ibuprofen	126	145	P/P	50 - 160
Imazapyr	94.9	103	P/P	50 - 150
Imidacloprid	113	113	P/P	60 - 150
Linuron	119	119	P/P	60 - 150
Mandestrobin	125	122	P/P	50 - 150
MCPP	111	108	P/P	50 - 150
Naproxen	107	104	P/P	50 - 160
Primidone	117	109	P/P	60 - 150
Pyraclostrobin	112	113	P/P	60 - 150
Silvex	124	126	P/P	50 - 150
Thiamethoxam	127	122	P/P	50 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A116846
Included Lab Sample IDs: 2378295, 2378296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tolfenpyrad	101	106	P/P	60 - 150
Triclopyr	110	92.0	P/P	50 - 150

Reference Method: EPA 8270E
Run ID: A116853
Included Lab Sample IDs: 2378294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
PCB-1016	97.9		P	80 - 120
PCB-1260	95.8		P	80 - 120

Reference Method: EPA 8270E
Run ID: A116871
Included Lab Sample IDs: 2378294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	100		P	80 - 120
Alpha-BHC	90.8		P	80 - 120
Alpha-Chlordane	108		P	80 - 120
Beta-BHC	95.6		P	80 - 120
Beta-Cyfluthrin	101		P	80 - 120
Bifenthrin	96.9		P	80 - 120
Carbophenothion	103		P	80 - 120
Chlorothalonil	108		P	80 - 120
Cis-Nonachlor	104		P	80 - 120
Cypermethrin	96.1		P	80 - 120
Dacthal	108		P	80 - 120
DDD-p,p'	100		P	80 - 120
DDE-p,p'	111		P	80 - 120
DDT-p,p'	99.9		P	80 - 120
Delta-BHC	105		P	80 - 120
Deltamethrin	96.2		P	80 - 120
Dichlobenil	96.8		P	80 - 120
Dicofol	104		P	80 - 120
Dieldrin	110		P	80 - 120
Endosulfan I	93.3		P	80 - 120
Endosulfan II	109		P	80 - 120
Endosulfan Sulfate	116		P	80 - 120
Endrin	119		P	80 - 120
Endrin Aldehyde	112		P	80 - 120
Endrin Ketone	91.5		P	80 - 120
Esfenvalerate	103		P	80 - 120
Ethalfluralin	105		P	80 - 120
Fenpropathrin	92.1		P	80 - 120
Gamma-BHC	93.7		P	80 - 120
Gamma-Chlordane	99.3		P	80 - 120
Heptachlor	113		P	80 - 120
Heptachlor Epoxide	97.6		P	80 - 120
Hexachlorobenzene	108		P	80 - 120
Kepone	82.2		P	80 - 120
Lambda-Cyhalothrin	89.4		P	80 - 120

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8270E
Run ID: A116871
Included Lab Sample IDs: 2378294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Methoprene	107		P	80 - 120
Methoxychlor	104		P	80 - 120
MGK-264	100		P	80 - 120
Mirex	86.7		P	80 - 120
Oxychlordane	80.5		P	80 - 120
Permethrin	105		P	80 - 120
Phenothrin	87.6		P	80 - 120
Piperonyl Butoxide	84.0		P	80 - 120
Prallethrin	105		P	80 - 120
Tau-Fluvalinate	107		P	80 - 120
Tetramethrin	106		P	80 - 120
Trans-Nonachlor	113		P	80 - 120
Triclosan Methyl	94.3		P	80 - 120
Trifluralin	97.7		P	80 - 120

Reference Method: EPA 8276
Run ID: A116927
Included Lab Sample IDs: 2378294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	99.9		P	80 - 120
Toxaphene	100		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A116978
Included Lab Sample IDs: 2378297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.5	98.8	P/P	90 - 110
Iron	98.5	98.7	P/P	90 - 110
Magnesium	98.3	98.1	P/P	90 - 110
Potassium	103	103	P/P	90 - 110
Sodium	105	105	P/P	90 - 110
Strontium	106	106	P/P	90 - 110
Tin	99.0	99.6	P/P	90 - 110
Titanium	106	106	P/P	90 - 110
Vanadium	107	107	P/P	90 - 110
Zinc	93.5	93.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A116999
Included Lab Sample IDs: 2378297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	95.7	96.3	P/P	90 - 110
Antimony	102	102	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Barium	99.3	98.5	P/P	90 - 110
Beryllium	97.7	97.4	P/P	90 - 110
Boron	93.5	93.9	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A116999
Included Lab Sample IDs: 2378297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	96.2	96.5	P/P	90 - 110
Cobalt	95.5	95.1	P/P	90 - 110
Copper	98.3	97.4	P/P	90 - 110
Lead	91.9	92.0	P/P	90 - 110
Manganese	99.0	97.8	P/P	90 - 110
Molybdenum	98.1	97.6	P/P	90 - 110
Nickel	98.1	97.2	P/P	90 - 110
Selenium	100	101	P/P	90 - 110
Silver	101	100	P/P	90 - 110
Thallium	99.3	99.7	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.7 Rev. 4.4	Calcium	98.9	97.6	96.6				0.302
	Iron	99.0	102	99.7	98.9			2.23
	Magnesium	99.8	102	99.7	98.2			2.03
	Potassium	100	102	102	101			0.534
	Sodium	103	103	102	101			0.523
	Strontium	102	104	103	102			0.614
	Tin	94.1	101	98.3	97.0			2.75
	Titanium	103	105	101	105			3.64
	Vanadium	103	106	103	114			3.27
	Zinc	91.5	93.3	90.0	90.1			3.58
EPA 200.8 Rev. 5.4	Aluminum	97.3	96.3	97.6	96.2			0.0446
	Antimony	99.4	103	103	105			0.851
	Arsenic	102	103	103	104			0.0981
	Barium	100	102	101	102			0.851
	Beryllium	93.2	94.0	94.6	94.7			0.583
	Boron	96.4	100	98.2	97.0			1.87
	Cadmium	100	105	104	105			1.54
	Chromium	95.3	98.2	96.6	98.8			1.45
	Cobalt	97.4	98.5	96.5	97.9			2.08
	Copper	99.0	101	98.7	97.8			1.92
	Lead	91.4	93.7	93.6	92.8			0.160
	Manganese	95.9	100	98.4	101			1.88
	Molybdenum	97.4	101	101	103			0.188
	Nickel	99.6	102	100	99.8			2.14
	Selenium	99.6	101	101	102			0.493
	Silver	101	102	101	101			1.12
	Thallium	98.9	102	102	101			0.271
EPA 8270E	Aldrin	59.9	51.4	64.6				22.8
	Alpha-BHC	102	101	93.0				8.65
	Alpha-Chlordane	98.2	72.7	69.0				4.83
	Beta-BHC	131	114	121				5.51
	Beta-Cyfluthrin	107	87.0	89.2				2.47
	Bifenthrin	86.0	68.1	76.1				11.1
	Carbophenothion	69.3	74.1	79.7				7.35
	Chlorothalonil	146	95.5	77.2				21.2
	Cis-Nonachlor	98.9	43.3	49.4				13.2
	Cypermethrin	132	97.1	115				16.7
	Dacthal	105	90.4	103				12.7
	DDD-p,p'	97.0	55.6	67.8				19.8
	DDE-p,p'	104	98.7	91.8				7.31
	DDT-p,p'	67.3	69.8	65.4				6.63
	Delta-BHC	134	128	128				0.161
	Deltamethrin	101	97.0	102				5.21
	Dichlobenil	114	95.6	90.7				5.22
	Dicofol	92.3	59.7	57.3				4.16
	Dieldrin	108	104	97.3				6.53
	Endosulfan I	103	82.2	90.0				9.09
	Endosulfan II	113	89.8	107				17.5
	Endosulfan Sulfate	114	101	86.3				15.5
	Endrin	93.6	97.3	94.0				3.48
	Endrin Aldehyde	86.3	36.4	46.4				24.2
	Endrin Ketone	94.2	61.4	82.1				28.8
	Esfenvalerate	112	123	115				6.93
	Ethalfluralin	85.7	79.1	81.7				3.27

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8270E	Fenpropathrin	113	63.7	84.5			28.1
	Gamma-BHC	96.1	104	114			8.90
	Gamma-Chlordane	87.8	33.3	48.3			36.9
	Heptachlor	87.2	83.7	91.5			8.89
	Heptachlor Epoxide	98.9	77.4	91.5			16.7
	Hexachlorobenzene	78.9	75.7	66.8			12.4
	Kepone	143	62.6	77.8			21.7
	Lambda-Cyhalothrin	115	80.1	80.3			0.316
	Methoprene	90.4	97.3	90.8			6.91
	Methoxychlor	74.5	91.3	96.4			5.45
	MGK-264	97.3	103	112			8.06
	Mirex	94.2	68.8	68.2			0.882
	Oxychlordane	92.5	68.0	77.6			13.1
	PCB-1016	72.4	76.6	82.0			6.81
	PCB-1260	62.8	65.9	68.3			3.64
	Permethrin	113	94.4	86.3			7.45
	Phenothrin	53.0	43.4	44.3			1.97
	Piperonyl Butoxide	95.1	131	138			4.85
	Prallethrin	105	106	114			7.03
	Tau-Fluvalinate	81.1	90.1	75.8			17.2
	Tetramethrin	103	161	171			6.07
	Trans-Nonachlor	102	68.8	82.3			17.8
	Triclosan Methyl	87.9	43.2	49.2			13.0
	Trifluralin	96.6	76.4	84.0			9.49
EPA 8276	Chlordane	66.8	66.6	71.7			7.36
	Toxaphene	69.5	62.1	78.4			23.2
EPA 8321B	2,4-D	103	110	127			13.8
	2,4,5-T	74.4	86.5	100			14.9
	Acesulfame K	107	115	116			0.746
	Acetaminophen	82.6	102	109			6.27
	Acetamiprid	74.0	106	116			8.87
	Afidopyropen	59.2	82.4	87.7			6.25
	AMPA	88.3	81.7	80.4			1.45
	Bentazon	86.8	72.5	69.9			2.47
	Benzovindiflupyr	72.3	76.6	83.7			8.83
	Carbamazepine	69.8	72.7	78.5			7.74
	Clothianidin	90.3	110	125			12.8
	Dinotefuran	85.2	105	115			8.73
	Diuron	62.1	57.2	59.6			3.99
	Endothall	100	110	110			0.207
	Fenuron	88.9	92.2	94.3			2.29
	Fluridone	80.0	74.4	87.7			15.1
	Glufosinate	84.1	99.6	87.3			13.1
	Glyphosate	81.2	87.6	87.6			0.0596
	Hydrocodone	76.9	103	104			1.78
	Ibuprofen	91.1	81.5	101			21.5
	Imazapyr	81.4	104	121			10.4
	Imidacloprid	77.8	116	142			20.0
	Linuron	62.4	71.2	69.3			2.63
	Mandestrobin	81.3	90.5	97.5			7.42
	MCPP	94.2	109	118			7.82
	Naproxen	82.5	98.9	80.8			20.2
	Primidone	85.0	95.6	106			10.3
	Pyraclostrobin	67.1	71.9	80.9			11.8

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Silvex	101	107	118			9.93
	Sucralose	124	118	113			2.99
	Thiamethoxam	80.6	101	111			9.46
	Tolfenpyrad	34.5	43.5	43.9			0.998
	Triclopyr	79.6	87.5	114			26.1

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	2378297
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2378297
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2378294
EPA 8270E	PCBs in water matrices by GC/MS/MS	2378294
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2378294
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2378295, 2378296
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2378297

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	01/05/2023	01/06/2023 11:55	George D Taylor	01/19/2023 05:45	McKinley C Carter	2378297
EPA 200.8 Rev. 5.4	01/05/2023	01/06/2023 11:55	George D Taylor	01/20/2023 03:36	Emily M Philpot	2378297
EPA 8270E	01/05/2023	01/09/2023 08:00	Fe-Val Siddell	01/10/2023 20:30	Vandana T. Nagar	2378294
	01/05/2023	01/09/2023 08:00	Fe-Val Siddell	01/10/2023 23:46	Julie Wi	2378294
EPA 8276	01/05/2023	01/09/2023 08:00	Fe-Val Siddell	01/13/2023 06:09	Lipi Saha	2378294
EPA 8321B	01/05/2023	01/06/2023 06:00	June Rhew	01/06/2023 18:48	Manjita Shrestha	2378295
	01/05/2023	01/06/2023 06:00	June Rhew	01/06/2023 19:03	Manjita Shrestha	2378296
	01/05/2023	01/06/2023 06:00	June Rhew	01/07/2023 01:56	Manjita Shrestha	2378295
	01/05/2023	01/06/2023 06:00	June Rhew	01/07/2023 02:09	Manjita Shrestha	2378296
	01/05/2023	01/06/2023 06:00	June Rhew	01/09/2023 12:52	Manjita Shrestha	2378295
	01/05/2023	01/09/2023 09:30	June Rhew	01/09/2023 23:14	Juyoung Kim	2378295
	01/05/2023	01/09/2023 09:30	June Rhew	01/09/2023 23:33	Juyoung Kim	2378296
	01/05/2023	01/09/2023 09:30	June Rhew	01/11/2023 10:43	Juyoung Kim	2378295
	01/05/2023	01/09/2023 09:30	June Rhew	01/11/2023 11:02	Juyoung Kim	2378296
	01/05/2023	01/09/2023 09:30	June Rhew	01/11/2023 11:21	Juyoung Kim	2378295
SM 2340 B-2011	01/05/2023			01/19/2023 05:45	McKinley C Carter	2378297