

Chemical Analysis Report

SE-DIST-2021-09-08-01

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

Event Description: **SMP - IRC canals + Goat Creek**
Request ID: **RQ-2021-08-30-44**
Customer: **SE-DIST**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 24-SEP-2021 15:11

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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 group are included in this report: 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: 09/07/2021 11:20

Field ID: G5SE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2274096	EPA 8270E	Aldrin	0.67	UJ	ng/L	P403591	LCS
		Alpha-BHC	0.10	U	ng/L	P403591	
		Alpha-Chlordane	0.21	U	ng/L	P403591	
		Beta-BHC	0.10	U	ng/L	P403591	
		Beta-Cyfluthrin**	1.3	U	ng/L	P403591	
		Bifenthrin**	0.52	U	ng/L	P403591	
		Carbophenothion	0.93	U	ng/L	P403591	
		Chlorothalonil	0.52	U	ng/L	P403591	
		Cis-Nonachlor**	0.21	U	ng/L	P403591	
		Cypermethrin	1.6	U	ng/L	P403591	
		Dacthal**	0.16	U	ng/L	P403591	
		DDD-p,p'	0.26	U	ng/L	P403591	
		DDE-p,p'	0.21	U	ng/L	P403591	
		DDT-p,p'	0.26	U	ng/L	P403591	
		Delta-BHC	0.41	U	ng/L	P403591	
		Deltamethrin**	1.3	U	ng/L	P403591	RPD
		Dichlobenil**	0.10	U	ng/L	P403591	
		Dicofol	1.3	U	ng/L	P403591	
		Dieldrin	0.41	U	ng/L	P403591	
		Endosulfan I	0.41	U	ng/L	P403591	
		Endosulfan II	0.41	U	ng/L	P403591	MS
		Endosulfan Sulfate	0.31	U	ng/L	P403591	
		Endrin	0.41	U	ng/L	P403591	
		Endrin Aldehyde	0.78	UJ	ng/L	P403591	CCV
		Endrin Ketone	0.41	U	ng/L	P403591	
		Esfenvalerate**	0.78	U	ng/L	P403591	
		Ethalfuralin**	0.16	U	ng/L	P403591	
		Fenpropathrin**	0.26	U	ng/L	P403591	
		Gamma-BHC	0.13	U	ng/L	P403591	
		Gamma-Chlordane	0.21	U	ng/L	P403591	
		Heptachlor	0.21	U	ng/L	P403591	
		Heptachlor Epoxide	0.26	U	ng/L	P403591	
		Hexachlorobenzene	1.0	U	ng/L	P403591	
		Kepone**	5.2	U	ng/L	P403591	
		Lambda-Cyhalothrin**	0.78	U	ng/L	P403591	
		Methoprene**	0.78	U	ng/L	P403591	
		Methoxychlor	0.31	U	ng/L	P403591	
		MGK-264**	0.21	U	ng/L	P403591	
		Mirex	0.72	U	ng/L	P403591	
		Oxychlordane**	0.31	U	ng/L	P403591	
		Permethrin	1.7	U	ng/L	P403591	
		Phenothrin**	0.93	U	ng/L	P403591	
		Piperonyl Butoxide**	0.33	I	ng/L	P403591	
		Prallethrin**	2.1	U	ng/L	P403591	

Field ID: G5SE0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2274096	EPA 8270E	Tau-Fluvalinate**	0.26	U	ng/L	P403591	
		Tetramethrin**	0.78	U	ng/L	P403591	
		Trans-Nonachlor**	0.21	U	ng/L	P403591	
		Triclosan Methyl**	0.16	U	ng/L	P403591	
		Trifluralin	0.21	U	ng/L	P403591	
	EPA 8276	Chlordane	5.2	U	ng/L	P403591	
		Toxaphene	31	U	ng/L	P403591	

Ref. Method and Comment:
EPA 8270E: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: North Canal @ US1

Collection Date/Time: 09/07/2021 11:45

Field ID: G5SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2274097	EPA 8270E	Aldrin	0.67	UJ	ng/L	P403591	LCS
		Alpha-BHC	0.10	U	ng/L	P403591	
		Alpha-Chlordane	0.20	U	ng/L	P403591	
		Beta-BHC	0.10	U	ng/L	P403591	
		Beta-Cyfluthrin**	1.3	U	ng/L	P403591	
		Bifenthrin**	0.51	U	ng/L	P403591	
		Carbophenothion	0.92	U	ng/L	P403591	
		Chlorothalonil	0.51	U	ng/L	P403591	
		Cis-Nonachlor**	0.20	U	ng/L	P403591	
		Cypermethrin	1.5	U	ng/L	P403591	
		Dacthal**	0.15	U	ng/L	P403591	
		DDD-p,p'	0.26	U	ng/L	P403591	
		DDE-p,p'	0.20	U	ng/L	P403591	
		DDT-p,p'	0.26	U	ng/L	P403591	
		Delta-BHC	0.41	U	ng/L	P403591	
		Deltamethrin**	1.3	U	ng/L	P403591	RPD
		Dichlobenil**	0.10	U	ng/L	P403591	
		Dicofol	1.3	U	ng/L	P403591	
		Dieldrin	0.41	U	ng/L	P403591	
		Endosulfan I	0.41	U	ng/L	P403591	
		Endosulfan II	0.41	U	ng/L	P403591	MS
		Endosulfan Sulfate	0.31	U	ng/L	P403591	
		Endrin	0.41	U	ng/L	P403591	
		Endrin Aldehyde	0.77	UJ	ng/L	P403591	CCV
		Endrin Ketone	0.41	U	ng/L	P403591	
		Esfenvalerate**	0.77	U	ng/L	P403591	
		Ethalfuralin**	0.15	U	ng/L	P403591	
		Fenpropathrin**	0.26	U	ng/L	P403591	
		Gamma-BHC	0.13	U	ng/L	P403591	
		Gamma-Chlordane	0.24	I	ng/L	P403591	
		Heptachlor	0.20	U	ng/L	P403591	
		Heptachlor Epoxide	0.26	U	ng/L	P403591	
		Hexachlorobenzene	1.0	U	ng/L	P403591	
		Kepone**	5.1	U	ng/L	P403591	
		Lambda-Cyhalothrin**	0.77	U	ng/L	P403591	
		Methoprene**	0.77	U	ng/L	P403591	
		Methoxychlor	0.31	U	ng/L	P403591	
		MGK-264**	0.20	U	ng/L	P403591	
		Mirex	0.72	U	ng/L	P403591	
		Oxychlordane**	0.31	U	ng/L	P403591	
		Permethrin	1.6	U	ng/L	P403591	
		Phenothrin**	0.92	U	ng/L	P403591	
		Piperonyl Butoxide**	0.44	I	ng/L	P403591	
		Prallethrin**	2.0	U	ng/L	P403591	

Field ID: G5SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2274097	EPA 8270E	Tau-Fluvalinate**	0.26	U	ng/L	P403591	
		Tetramethrin**	0.77	U	ng/L	P403591	
		Trans-Nonachlor**	0.20	U	ng/L	P403591	
		Triclosan Methyl**	0.15	U	ng/L	P403591	
		Trifluralin	0.20	U	ng/L	P403591	
	EPA 8276	Chlordane	5.1	U	ng/L	P403591	
		Toxaphene	31	U	ng/L	P403591	

Ref. Method and Comment:
EPA 8270E: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8270E

Batch ID: P403591

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	0.50	U	ng/L
Chlorothalonil	0.50	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	0.10	U	ng/L
Dichlobenil	0.10	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8270E

Batch ID: P403591

Component	Result	Code	Units
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
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
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: P403591

Component	Result	Code	Units
Chlordane	5.0	U	ng/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8276
Batch ID: P403591

Component	Result	Code	Units
Chlordane	5.0	U	ng/L
Toxaphene	30	U	ng/L
Toxaphene	30	U	ng/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8270E
Batch ID: P403591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aldrin	86.0	90.7	F/F	20 - 83.0
Alpha-BHC	88.3	90.4	P/P	74 - 108
Alpha-Chlordane	90.6	97.1	P/P	53 - 109
Beta-BHC	93.0	99.4	P/P	64 - 139
Beta-Cyfluthrin	110	106	P/P	27 - 171
Bifenthrin	92.1	93.2	P/P	20 - 124
Carbophenothion	78.2	78.8	P/P	20 - 94.0
Chlorothalonil	95.4	95.7	P/P	20 - 182
Cis-Nonachlor	81.9	84.6	P/P	46 - 110
Cypermethrin	97.0	95.3	P/P	35 - 160
Dacthal	95.7	99.4	P/P	70 - 115
DDD-p,p'	81.5	85.0	P/P	51 - 108
DDE-p,p'	92.0	97.8	P/P	51 - 104
DDT-p,p'	97.4	99.7	P/P	52 - 107
Delta-BHC	101	104	P/P	73 - 146
Deltamethrin	107	90.7	P/P	20 - 190
Dichlobenil	88.0	86.4	P/P	30 - 100
Dicofol	82.6	81.7	P/P	52 - 110
Dieldrin	97.1	103	P/P	57 - 111
Endosulfan I	89.3	96.7	P/P	61 - 106
Endosulfan II	82.6	85.7	P/P	57 - 122
Endosulfan Sulfate	80.8	73.3	P/P	58 - 122
Endrin	80.6	83.5	P/P	34 - 125
Endrin Aldehyde	84.5	79.0	P/P	40 - 120
Endrin Ketone	87.0	87.0	P/P	51 - 138
Esfenvalerate	101	97.6	P/P	20 - 193
Ethalfuralin	86.3	90.5	P/P	51 - 99.0
Fenpropathrin	91.3	90.5	P/P	40 - 116
Gamma-BHC	92.0	97.2	P/P	74 - 116
Gamma-Chlordane	90.9	95.8	P/P	49 - 105
Heptachlor	90.8	94.3	P/P	45 - 98.0
Heptachlor Epoxide	93.1	97.5	P/P	61 - 106
Hexachlorobenzene	91.6	93.7	P/P	41 - 96.0
Kepone	28.0	28.4	P/P	27 - 179
Lambda-Cyhalothrin	95.9	93.7	P/P	20 - 199
Methoprene	93.2	101	P/P	50 - 150
Methoxychlor	92.2	93.8	P/P	61 - 111
MGK-264	97.3	104	P/P	20 - 124
Mirex	83.0	84.7	P/P	20 - 199
Oxychlordane	85.3	95.5	P/P	50 - 150
Permethrin	95.7	95.5	P/P	31 - 155
Phenothrin	98.6	93.9	P/P	20 - 100
Piperonyl Butoxide	88.8	90.7	P/P	20 - 144
Prallethrin	92.3	92.3	P/P	20 - 103
Tau-Fluvalinate	101	98.0	P/P	24 - 133
Tetramethrin	88.3	91.2	P/P	20 - 116
Trans-Nonachlor	92.0	94.9	P/P	49 - 105
Triclosan Methyl	94.4	101	P/P	60 - 111
Trifluralin	86.8	87.8	P/P	53 - 97.0

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8276
Batch ID: P403591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	81.2	79.6	P/P	56 - 117
Toxaphene	78.1	74.0	P/P	45 - 116

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8270E
Batch ID: P403591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275031	Aldrin	46.2	45.1	P/P	10 - 94.0
2275031	Alpha-BHC	84.1	83.7	P/P	71 - 108
2275031	Alpha-Chlordane	70.5	70.7	P/P	42 - 115
2275031	Beta-BHC	80.6	73.9	P/P	56 - 161
2275031	Beta-Cyfluthrin	107	122	P/P	46 - 190
2275031	Bifenthrin	73.9	78.7	P/P	19 - 126
2275031	Carbophenothion	58.5	62.1	P/P	18 - 108
2275031	Chlorothalonil	133	137	P/P	10 - 262
2275031	Cis-Nonachlor	45.0	46.8	P/P	44 - 112
2275031	Cypermethrin	84.0	94.5	P/P	40 - 178
2275031	Dacthal	80.5	80.3	P/P	60 - 119
2275031	DDD-p,p'	44.1	44.9	P/P	40 - 114
2275031	DDE-p,p'	73.8	74.0	P/P	22 - 125
2275031	DDT-p,p'	82.1	85.0	P/P	39 - 110
2275031	Delta-BHC	85.4	78.7	P/P	64 - 174
2275031	Deltamethrin	43.5	78.0	P/P	10 - 227
2275031	Dichlobenil	71.7	75.7	P/P	20 - 99.0
2275031	Dicofol	72.3	77.6	P/P	43 - 115
2275031	Dieldrin	72.6	71.4	P/P	31 - 131
2275031	Endosulfan I	75.5	73.6	P/P	52 - 110
2275031	Endosulfan II	48.2	46.0	F/F	53 - 127
2275031	Endosulfan Sulfate	53.5	56.4	P/P	44 - 135
2275031	Endrin	47.7	45.0	P/P	36 - 122
2275031	Endrin Aldehyde	43.6	50.5	P/P	23 - 115
2275031	Endrin Ketone	72.5	72.8	P/P	46 - 147
2275031	Esfenvalerate	82.8	89.6	P/P	25 - 217
2275031	Ethalfuralin	63.9	67.1	P/P	46 - 99.0
2275031	Fenpropathrin	76.4	84.6	P/P	42 - 121
2275031	Gamma-BHC	82.9	79.1	P/P	63 - 131
2275031	Gamma-Chlordane	69.1	69.2	P/P	40 - 108
2275031	Heptachlor	70.1	70.5	P/P	38 - 98.0
2275031	Heptachlor Epoxide	67.4	68.4	P/P	39 - 124
2275031	Hexachlorobenzene	71.0	73.1	P/P	37 - 96.0
2275031	Kepone	10.3	11.0	P/P	10 - 216
2275031	Lambda-Cyhalothrin	99.6	106	P/P	21 - 220
2275031	Methoprene	84.9	84.4	P/P	50 - 170
2275031	Methoxychlor	86.8	87.2	P/P	56 - 118
2275031	MGK-264	62.2	63.0	P/P	28 - 125
2275031	Mirex	54.8	55.3	P/P	10 - 203
2275031	Oxychlordane	68.4	72.8	P/P	50 - 170
2275031	Permethrin	89.0	99.6	P/P	42 - 173
2275031	Phenothrin	58.9	62.5	P/P	10 - 140
2275031	Piperonyl Butoxide	98.3	99.6	P/P	10 - 158
2275031	Prallethrin	61.1	60.4	P/P	19 - 119
2275031	Tau-Fluvalinate	80.2	89.8	P/P	27 - 164
2275031	Tetramethrin	62.2	62.9	P/P	16 - 130
2275031	Trans-Nonachlor	69.6	69.1	P/P	43 - 105
2275031	Triclosan Methyl	72.5	74.0	P/P	50 - 113
2275031	Trifluralin	67.9	68.5	P/P	48 - 98.0

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P403591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275352	Chlordane	85.7	83.2	P/P	47 - 128
2275352	Toxaphene	83.9	85.8	P/P	11 - 163

Quality Assurance Report Precision

Reference Method: EPA 8270E

Batch ID: P403591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275031	Aldrin	2.32	Spike	P	0 - 30
2275031	Alpha-BHC	0.497	Spike	P	0 - 30
2275031	Alpha-Chlordane	0.310	Spike	P	0 - 30
2275031	Beta-BHC	8.79	Spike	P	0 - 30
2275031	Beta-Cyfluthrin	13.3	Spike	P	0 - 30
2275031	Bifenthrin	6.38	Spike	P	0 - 30
2275031	Carbophenothion	5.94	Spike	P	0 - 30
2275031	Chlorothalonil	2.60	Spike	P	0 - 50
2275031	Cis-Nonachlor	3.82	Spike	P	0 - 30
2275031	Cypermethrin	11.7	Spike	P	0 - 30
2275031	Dacthal	0.190	Spike	P	0 - 30
2275031	DDD-p,p'	1.79	Spike	P	0 - 30
2275031	DDE-p,p'	0.304	Spike	P	0 - 30
2275031	DDT-p,p'	3.45	Spike	P	0 - 30
2275031	Delta-BHC	8.15	Spike	P	0 - 30
2275031	Deltamethrin	56.7	Spike	F	0 - 30
2275031	Dichlobenil	5.39	Spike	P	0 - 30
2275031	Dicofol	7.17	Spike	P	0 - 30
2275031	Dieldrin	1.67	Spike	P	0 - 30
2275031	Endosulfan I	2.62	Spike	P	0 - 30
2275031	Endosulfan II	4.56	Spike	P	0 - 30
2275031	Endosulfan Sulfate	5.19	Spike	P	0 - 30
2275031	Endrin	5.82	Spike	P	0 - 30
2275031	Endrin Aldehyde	14.6	Spike	P	0 - 30
2275031	Endrin Ketone	0.311	Spike	P	0 - 30
2275031	Esfenvalerate	7.91	Spike	P	0 - 30
2275031	Ethalfuralin	4.87	Spike	P	0 - 30
2275031	Fenpropathrin	10.2	Spike	P	0 - 30
2275031	Gamma-BHC	4.72	Spike	P	0 - 30
2275031	Gamma-Chlordane	0.244	Spike	P	0 - 30
2275031	Heptachlor	0.645	Spike	P	0 - 30
2275031	Heptachlor Epoxide	1.60	Spike	P	0 - 30
2275031	Hexachlorobenzene	2.81	Spike	P	0 - 30
2275031	Kepone	6.76	Spike	P	0 - 30
2275031	Lambda-Cyhalothrin	6.45	Spike	P	0 - 30
2275031	Methoprene	0.605	Spike	P	0 - 30
2275031	Methoxychlor	0.492	Spike	P	0 - 30
2275031	MGK-264	1.21	Spike	P	0 - 30
2275031	Mirex	0.765	Spike	P	0 - 30
2275031	Oxychlordane	6.21	Spike	P	0 - 30
2275031	Permethrin	11.2	Spike	P	0 - 30
2275031	Phenothrin	6.07	Spike	P	0 - 30
2275031	Piperonyl Butoxide	1.35	Spike	P	0 - 30
2275031	Prallethrin	1.07	Spike	P	0 - 30
2275031	Tau-Fluvalinate	11.3	Spike	P	0 - 30
2275031	Tetramethrin	1.06	Spike	P	0 - 30
2275031	Trans-Nonachlor	0.768	Spike	P	0 - 30
2275031	Triclosan Methyl	2.10	Spike	P	0 - 30
2275031	Trifluralin	0.982	Spike	P	0 - 30
LFB	Aldrin	5.21	LCS	P	0 - 30
LFB	Alpha-BHC	2.38	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8270E
Batch ID: P403591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	Alpha-Chlordane	6.94	LCS	P	0 - 30
LFB	Beta-BHC	6.71	LCS	P	0 - 30
LFB	Beta-Cyfluthrin	4.43	LCS	P	0 - 30
LFB	Bifenthrin	1.23	LCS	P	0 - 30
LFB	Carbophenothion	0.850	LCS	P	0 - 30
LFB	Chlorothalonil	0.224	LCS	P	0 - 50
LFB	Cis-Nonachlor	3.20	LCS	P	0 - 30
LFB	Cypermethrin	1.82	LCS	P	0 - 30
LFB	Dacthal	3.81	LCS	P	0 - 30
LFB	DDD-p,p'	4.28	LCS	P	0 - 30
LFB	DDE-p,p'	6.08	LCS	P	0 - 30
LFB	DDT-p,p'	2.36	LCS	P	0 - 30
LFB	Delta-BHC	2.26	LCS	P	0 - 30
LFB	Deltamethrin	16.6	LCS	P	0 - 30
LFB	Dichlobenil	1.81	LCS	P	0 - 30
LFB	Dicofol	1.03	LCS	P	0 - 30
LFB	Dieldrin	5.54	LCS	P	0 - 30
LFB	Endosulfan I	7.94	LCS	P	0 - 30
LFB	Endosulfan II	3.71	LCS	P	0 - 30
LFB	Endosulfan Sulfate	9.76	LCS	P	0 - 30
LFB	Endrin	3.43	LCS	P	0 - 30
LFB	Endrin Aldehyde	6.69	LCS	P	0 - 30
LFB	Endrin Ketone	0.0673	LCS	P	0 - 30
LFB	Esfenvalerate	2.93	LCS	P	0 - 30
LFB	Ethalfuralin	4.77	LCS	P	0 - 30
LFB	Fenpropathrin	0.937	LCS	P	0 - 30
LFB	Gamma-BHC	5.49	LCS	P	0 - 30
LFB	Gamma-Chlordane	5.18	LCS	P	0 - 30
LFB	Heptachlor	3.81	LCS	P	0 - 30
LFB	Heptachlor Epoxide	4.62	LCS	P	0 - 30
LFB	Hexachlorobenzene	2.28	LCS	P	0 - 30
LFB	Kepone	1.50	LCS	P	0 - 30
LFB	Lambda-Cyhalothrin	2.28	LCS	P	0 - 30
LFB	Methoprene	8.53	LCS	P	0 - 30
LFB	Methoxychlor	1.65	LCS	P	0 - 30
LFB	MGK-264	6.79	LCS	P	0 - 30
LFB	Mirex	2.04	LCS	P	0 - 30
LFB	Oxychlordane	11.3	LCS	P	0 - 30
LFB	Permethrin	0.192	LCS	P	0 - 30
LFB	Phenothrin	4.88	LCS	P	0 - 30
LFB	Piperonyl Butoxide	2.13	LCS	P	0 - 30
LFB	Prallethrin	0.00974	LCS	P	0 - 30
LFB	Tau-Fluvalinate	2.75	LCS	P	0 - 30
LFB	Tetramethrin	3.20	LCS	P	0 - 30
LFB	Trans-Nonachlor	3.10	LCS	P	0 - 30
LFB	Triclosan Methyl	7.18	LCS	P	0 - 30
LFB	Trifluralin	1.13	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8276

Batch ID: P403591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275352	Chlordane	2.88	Spike	P	0 - 30
2275352	Toxaphene	2.28	Spike	P	0 - 30
LFB	Chlordane	1.92	LCS	P	0 - 30
LFB	Toxaphene	5.34	LCS	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2274096
Field Sample ID: G5SE0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	71.5	P	29 - 123
EPA 8270E	Tetrachloro-m-xylene	58.1	P	24 - 97.0
EPA 8276	Decachlorobiphenyl	61.2	P	29 - 92.0
EPA 8276	PCNB	80.1	P	43 - 134

Lab Sample ID: 2274097
Field Sample ID: G5SE0043

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8270E	Decachlorobiphenyl	74.1	P	29 - 123
EPA 8270E	Tetrachloro-m-xylene	58.3	P	24 - 97.0
EPA 8276	Decachlorobiphenyl	60.9	P	29 - 92.0
EPA 8276	PCNB	84.2	P	43 - 134

Quality Assurance Report Calibration Verification

Reference Method: EPA 8270E

Run ID: A107844

Included Lab Sample IDs: 2274096, 2274097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aldrin	100		P	80 - 120
Alpha-BHC	99.8		P	80 - 120
Alpha-Chlordane	103		P	80 - 120
Beta-BHC	91.9		P	80 - 120
Beta-Cyfluthrin	101		P	80 - 120
Bifenthrin	102		P	80 - 120
Carbophenothion	106		P	80 - 120
Chlorothalonil	102		P	80 - 120
Cis-Nonachlor	103		P	80 - 120
Cypermethrin	103		P	80 - 120
Dacthal	98.5		P	80 - 120
DDD-p,p'	104		P	80 - 120
DDE-p,p'	102		P	80 - 120
DDT-p,p'	102		P	80 - 120
Delta-BHC	94.9		P	80 - 120
Deltamethrin	99.9		P	80 - 120
Dichlobenil	98.8		P	80 - 120
Dicofol	103		P	80 - 120
Dieldrin	103		P	80 - 120
Endosulfan I	98.6		P	80 - 120
Endosulfan II	105		P	80 - 120
Endosulfan Sulfate	95.3		P	80 - 120
Endrin	103		P	80 - 120
Endrin Aldehyde	123*		F	80 - 120
Endrin Ketone	103		P	80 - 120
Esfenvalerate	103		P	80 - 120
Ethalfuralin	101		P	80 - 120
Fenpropathrin	111		P	80 - 120
Gamma-BHC	98.0		P	80 - 120
Gamma-Chlordane	102		P	80 - 120
Heptachlor	103		P	80 - 120
Heptachlor Epoxide	102		P	80 - 120
Hexachlorobenzene	102		P	80 - 120
Kepone	93.0		P	80 - 120
Lambda-Cyhalothrin	102		P	80 - 120
Methoprene	95.5		P	80 - 120
Methoxychlor	99.9		P	80 - 120
MGK-264	102		P	80 - 120
Mirex	101		P	80 - 120
Oxychlordane	103		P	80 - 120
Permethrin	100		P	80 - 120
Phenothrin	104		P	80 - 120
Piperonyl Butoxide	103		P	80 - 120
Prallethrin	86.3		P	80 - 120
Tau-Fluvalinate	99.5		P	80 - 120
Tetramethrin	104		P	80 - 120
Trans-Nonachlor	102		P	80 - 120
Triclosan Methyl	100		P	80 - 120
Trifluralin	96.5		P	80 - 120

Quality Assurance Report Calibration Verification

Reference Method: EPA 8276

Run ID: A107955

Included Lab Sample IDs: 2274096, 2274097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	95.9		P	80 - 120
Toxaphene	101		P	80 - 120

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision SMP	MS
EPA 8270E	Aldrin	90.7	86.0	46.2	45.1	5.21		2.32
	Alpha-BHC	90.4	88.3	84.1	83.7	2.38		0.497
	Alpha-Chlordane	97.1	90.6	70.5	70.7	6.94		0.310
	Beta-BHC	99.4	93.0	80.6	73.9	6.71		8.79
	Beta-Cyfluthrin	106	110	107	122	4.43		13.3
	Bifenthrin	93.2	92.1	73.9	78.7	1.23		6.38
	Carbophenothion	78.8	78.2	58.5	62.1	0.850		5.94
	Chlorothalonil	95.7	95.4	133	137	0.224		2.60
	Cis-Nonachlor	84.6	81.9	45.0	46.8	3.20		3.82
	Cypermethrin	95.3	97.0	84.0	94.5	1.82		11.7
	Dacthal	99.4	95.7	80.5	80.3	3.81		0.190
	DDD-p,p'	85.0	81.5	44.1	44.9	4.28		1.79
	DDE-p,p'	97.8	92.0	73.8	74.0	6.08		0.304
	DDT-p,p'	99.7	97.4	82.1	85.0	2.36		3.45
	Delta-BHC	104	101	85.4	78.7	2.26		8.15
	Deltamethrin	90.7	107	43.5	78.0	16.6		56.7
	Dichlobenil	86.4	88.0	71.7	75.7	1.81		5.39
	Dicofol	81.7	82.6	72.3	77.6	1.03		7.17
	Dieldrin	103	97.1	72.6	71.4	5.54		1.67
	Endosulfan I	96.7	89.3	75.5	73.6	7.94		2.62
	Endosulfan II	85.7	82.6	48.2	46.0	3.71		4.56
	Endosulfan Sulfate	73.3	80.8	53.5	56.4	9.76		5.19
	Endrin	83.5	80.6	47.7	45.0	3.43		5.82
	Endrin Aldehyde	79.0	84.5	43.6	50.5	6.69		14.6
	Endrin Ketone	87.0	87.0	72.5	72.8	0.0673		0.311
	Esfenvalerate	97.6	101	82.8	89.6	2.93		7.91
	Ethalfuralin	90.5	86.3	63.9	67.1	4.77		4.87
	Fenpropathrin	90.5	91.3	76.4	84.6	0.937		10.2
	Gamma-BHC	97.2	92.0	82.9	79.1	5.49		4.72
	Gamma-Chlordane	95.8	90.9	69.1	69.2	5.18		0.244
	Heptachlor	94.3	90.8	70.1	70.5	3.81		0.645
	Heptachlor Epoxide	97.5	93.1	67.4	68.4	4.62		1.60
	Hexachlorobenzene	93.7	91.6	71.0	73.1	2.28		2.81
	Kepone	28.4	28.0	10.3	11.0	1.50		6.76
	Lambda-Cyhalothrin	93.7	95.9	99.6	106	2.28		6.45
	Methoprene	101	93.2	84.9	84.4	8.53		0.605
	Methoxychlor	93.8	92.2	86.8	87.2	1.65		0.492
	MGK-264	104	97.3	62.2	63.0	6.79		1.21
	Mirex	84.7	83.0	55.3	54.8	2.04		0.765
	Oxychlordane	95.5	85.3	72.8	68.4	11.3		6.21
	Permethrin	95.5	95.7	99.6	89.0	0.192		11.2
	Phenothrin	93.9	98.6	62.5	58.9	4.88		6.07
	Piperonyl Butoxide	90.7	88.8	99.6	98.3	2.13		1.35
	Prallethrin	92.3	92.3	60.4	61.1	0.0097		1.07
	Tau-Fluvalinate	98.0	101	89.8	80.2	2.75		11.3
	Tetramethrin	91.2	88.3	62.9	62.2	3.20		1.06
	Trans-Nonachlor	94.9	92.0	69.1	69.6	3.10		0.768
	Triclosan Methyl	101	94.4	74.0	72.5	7.18		2.10
	Trifluralin	87.8	86.8	68.5	67.9	1.13		0.982
EPA 8276	Chlordane	81.2	79.6	85.7	83.2	1.92		2.88
	Toxaphene	78.1	74.0	83.9	85.8	5.34		2.28

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 8270E	Organochlorine pesticides, pyrethroids and tracers in water matrices by GC/MS/MS	2274096, 2274097
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2274096, 2274097

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8270E	09/08/2021	09/13/2021 08:30	Rasheda Ghaffari	09/16/2021 22:33	Arthur Maknenko	2274096
	09/08/2021	09/13/2021 08:30	Rasheda Ghaffari	09/16/2021 23:05	Arthur Maknenko	2274097
EPA 8276	09/08/2021	09/13/2021 08:30	Rasheda Ghaffari	09/22/2021 13:32	Julie Wi	2274096
	09/08/2021	09/13/2021 08:30	Rasheda Ghaffari	09/22/2021 14:27	Julie Wi	2274097