9613424.1698 0043736 B07G67-DAT-188

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START

OFFICE OF SAMPLE MANAGEMENT
RECORD OF DISPOSITION

ROD-92-00186
Record of Disposition No.

DATE: November 30, 1992	LABORATORY: DataChem
PROJECT TITLE/NO.: 300-FF-5/92-314	NCR NO.:

SAMPLE IDENTIFICATION NUMBERS:

- B07G67
- B07G68
- B07GB2
- B07GB3
- B07G69
- B07GD0
- B07GD1
- B07GF8
- B07GG0
- B01855
- B07G50
- B07G51

DESCRIPTION OF EVENT:

Samples were received at the laboratory beyond the 7 day holding time for pesticide/PCB analysis.

DISPOSITION OF SAMPLES:

Proceed with the sample analysis.

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APPROVAL SIGNATURES:

W. E. Strohben W. E. Strohben — 12/8/92
OSM Project Coordinator (Print/Sign Name) — Date

L. C. Hulstrom LC Hulstrom — 12/10/92
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

9613424.1699

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-92-00187
Record of Disposition No.

DATE: November 30, 1992

LABORATORY: TMA

PROJECT TITLE/NO.: 300-FF-5/92-314

NCR NO.:

SAMPLE IDENTIFICATION NUMBERS:

► B07G62	► B07G63	► B07GF5	► B07GF6	► B07GF7	► B07GF9
► B07G82	► B07GB0	► B07G65	► B07G66	► B07G67	► B01852
► B01853	► B01854	► B07G47	► B07G48	► B07G49	► B07GG2

DESCRIPTION OF EVENT:

Samples were received at the laboratory beyond the 28 day holding time for mercury.

DISPOSITION OF SAMPLES:

With concurrence from Larry Hulstrom, proceed with the sample analysis for mercury.

APPROVAL SIGNATURES:

W. E. Strohben W. E. Strohben — 12/8/92
OSM Project Coordinator (Print/Sign Name) — Date

L. C. Hulstrom LC Hulstrom — 12/10/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

9613424.1700

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-93-0123
Record of Disposition No.

DATE: 6/1/93	LABORATORY: TMA
PROJECT TITLE/NO.: 100-BC-5/93-089	NCR NO.: 051876

SAMPLE IDENTIFICATION NUMBERS:

B08FN1, B08FM1, B08FL6, B08FS6, B08FT1

DESCRIPTION OF EVENT:

The cyanide analysis was initially performed on the metals aliquot instead of the cyanide aliquot. The cyanide analysis was performed using the cyanide aliquot 30 days from sample collection.

DISPOSITION OF SAMPLES:

With consent from J. W. Roberts, proceed with the cyanide analysis using the cyanide aliquot with the understanding that the data is for information purposes only.

APPROVAL SIGNATURES:

W. E. Strohben/ W. E. Strohben — 6/2/93
OSM Project Coordinator (Print/Sign Name) — Date

J. W. Roberts/ J. W. Roberts — 7/12/93
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

9613424.1701

45/1/95 M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 12-29-92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

JAN 1993 RECEIVED OSM DMO

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
BL-88903-1	BL-88903-1	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0044
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0027
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0012
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0011
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0013
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.001
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

RECORD COPY

Kuang Chung Tang
Analyst: Kuang C. Tang

Vicki Hoe Lin Tsai
Reviewer: Vicki Hoe-Lin Tsai

Ellen Jenkins for JCD
Laboratory Supervisor: Jose C. Danino

9613424.1702

ii
5/1/95
M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 2 of 9
Part 1 of 4

Date _____

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
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NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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iii 5/1/95 m.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 3 of 9
Part 2 of 4

Date _____
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
BL-88903-1	BL-88903-1	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 4 of 9
Part 2 of 4

Date _____

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
BL-88903-1	BL-88903-1	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 6 of 9
Part 3 of 4

Date _____

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g	
* Limit of Detection			.0005	1.0	.5	.5	.5	.5	.5	.5	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

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( ) Parameter between LOD and LOQ.

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ANALYTICAL REPORT

Form ARF-AL
Page 7 of 9
Part 4 of 4

Date _____
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g					
BL-88903-1	BL-88903-1	SOLID	ND*	ND*	.069	.061					
B07G67	EL 4176	SOLID	ND*	ND*	.034	.046					
B07G68	EL 4177	SOLID	ND*	ND*	.037	.041					
B07GB2	EL 4178	SOLID	ND*	ND*	.039	.045					
B07GB3	EL 4179	SOLID	ND*	ND*	.033	.041					
B07GC9	EL 4180	SOLID	ND*	ND*	.033	.042					
B07GD0	EL 4181	SOLID	ND*	ND*	.032	.043					
B07GD1	EL 4182	SOLID	ND*	ND*	.031	.042					
B07GF8	EL 4183	SOLID	ND*	ND*	.024	.045					
B07GG0	EL 4184	SOLID	ND*	ND*	.022	.045					
B01855	EL 4185	SOLID	ND*	ND*	.029	.044					
B07G50	EL 4186	SOLID	ND*	ND*	.015	.043					
B07G51	EL 4187	SOLID	ND*	ND*	.023	.043					

† See comment on last page.
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** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
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Part 4 of 4

Date _____

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
* Limit of Detection			.5	.005	NA	NA				

† See comment on last page.
ND Parameter not detected.
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( ) Parameter between LOD and LOQ.

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viiii 5/1/95
m.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date _____

Agency Identification Number S92-0731

General Set Comments

The samples were spiked with the surrogates dibutylchlorendate (DBC) and 2,4,5,6-tetrachloro-m-xylene (TCMX) at .05 µg/g.

The QC reference sample was spiked with aroclor 1016 and 1260 at .25 µg/g. The recovery of aroclor 1016 is 69%, and that of aroclor 1260 is 88%.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT
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Form ARF-AL
Page 1 of 9
Part 1 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

OCT 1992 RECEIVED OSM DMO

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0044
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0027
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0012
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0011
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0013
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.001
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

RECORD COPY

Kuang-Chung Tang
Analyst: Kuang C. Tang

Vicki Hoe Lin Tsai
Reviewer: Vicki Hoe-Lin Tsai

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

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XVIII 5/1/95 M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 2 of 9
Part 1 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 4 ~~3~~ M.H. of 9
Part 2 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g	
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 5 of 9
Part 2 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613424.1714

XXii 5/1/95 M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 6/5 m.H of 9
Part 3 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g	
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

9613424.1715

XXiii 5/1/95 M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 7 M.H. of 9
Part 3 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	1.0	.5	.5	.5	.5	.5	.5

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1716

XXiv 5/1/95 M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
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Part 4 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g					
B07G67	EL 4176	SOLID	ND*	ND*	.034	.046					
B07G68	EL 4177	SOLID	ND*	ND*	.037	.041					
B07GB2	EL 4178	SOLID	ND*	ND*	.039	.045					
B07GB3	EL 4179	SOLID	ND*	ND*	.033	.041					
B07GC9	EL 4180	SOLID	ND*	ND*	.033	.042					
B07GD0	EL 4181	SOLID	ND*	ND*	.032	.043					
B07GD1	EL 4182	SOLID	ND*	ND*	.031	.042					
B07GF8	EL 4183	SOLID	ND*	ND*	.024	.045					
B07GG0	EL 4184	SOLID	ND*	ND*	.022	.045					
B01855	EL 4185	SOLID	ND*	ND*	.029	.044					
B07G50	EL 4186	SOLID	ND*	ND*	.015	.043					
B07G51	EL 4187	SOLID	ND*	ND*	.023	.043					
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*					

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

9613424.1717

XXV 5/1/95
M.H.

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 89 m.H. of 9
Part 4 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*				
* Limit of Detection			.5	.005	NA	NA				

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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XIV 5/1/95 M.H.

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator Brett Tiller

Company Contact C. A. Brandt — Telephone 376-3444

Project Designation/Sampling Locations 300 FF-5 Oper. Unit — Collection Date NA

Ice Chest No. PNL-BLT-2 — Field Logbook No. BNW-53573

Bill of Lading/Airbill No. — Offsite Property No. PNL-93-016

Method of Shipment Emery Overnight

Shipped to Data Chem.

Possible Sample Hazards/Remarks < Detection - Total Activity cleared, GEA analyzed and cleared.

Sample Identification

B07667	EL 4176 tissue sample	B07550	EL 4186 tissue sample
B07668	4177	B07551	4187
B07682	4178		
B07683	4179		
B07689	4180		
B07690	4181		
B07691	4182		
B07698	4183		
B07660	4184		
B01855	4185		

invoice not entered

Field Transfer of Custody	CHAIN OF POSSESSION	(Sign and Print Names)
Relinquished by: Brett Tiller Brett Tiller	Received by:	Date/Time: 9/24/92 1500
Relinquished by:	Received by: T. Jackson	Date/Time: 9-25-92 / 1200
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: Rec'd - Acceptable 9-25-92

A-6000-407 (12/90)

9613424.1719

XV 5/1/95
M.H.

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector Brett Tiller Date Sampled NA Time _____ hours

Company Contact ~~Data Chem~~ Brett Tiller Telephone (509) 376-3444

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07667	1 Glass jar	tissue	PCB / Pest
B07668			
B076B2			
B076B3			
B076C9			
B076D0			
B076D1			
B076F8			
B07660			
B01855			
B07650			
B07651			

eld Information** From 300 FF-5

pecial Handling and/or Storage NA

ossible Sample Hazards None detected

PART II: LABORATORY SECTION

eceived by _____ Title Sample Receipt Tech. Date 9-25-92

nalysis Required _____

*Indicate whether sample is soil, sludge, water, etc.
**Use back of page for additional information relative to sample location.

A-6000-406 (05/90)

9613424.1720

PRELIMINARY VALIDATION REPORT

9613424.1721

HARTCROWSER

Hart Crowser, Inc.
1201 Jadwin Avenue, Suite 204
Richland, WA 99352
FAX 509.946.4203
509.946.4344

Earth and Environmental Technologies

J-2978-50

Febuary 16, 1993

Ms. Jeanette Duncan
Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Re: WHC Order No. MLW-SVV-037106
Task Order No. E-93-06
Return of Chemical Data for 300-FF-5 RI/FS Samples

Dear Ms. Duncan:

Enclosed please find the data packages B07G67 (Pest/PCB) and N2-09-193 (Metals) from the 300-FF-5 Operable Unit Remedial Investigation/Feasibility Study (RI/FS). Data from selected analytical cases have been validated in accordance with Westinghouse Hanford contract data validation procedures. The initial results of our review of these data, including data qualifiers, are outlined in Preliminary Quality Assurance Records included with each transmittal as applicable. Please contact me if you have any questions with regard to the materials being returned to you.

Sincerely,

HART CROWSER, INC.
Per DMG.

D. MARK GERBOTH, P.E.
Task Manager
HC#130:RL1647.DOC

Attachment - Data Packages Returned to EDMC 2/16/93

cc: Larry Hulstrom (WHC)
File (HCRL-WHC/9306-L-93-058)

9613424.1722

THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

Attachment 1 - Glossary of Data Qualifiers

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

Attachment 2 - As Received Laboratory Sample Concentration Reports

This attachment provides copies of the as-received sample concentration reports.

Attachment 3 - Summary of Data Qualifications

This attachment provides a complete summary of all qualifications applied as a result of the validation.

Attachment 4 - As Qualified Data Summary

This attachment provides a tabular data summary or copies of the annotated sample concentration reports as qualified from the validation.

Attachment 5 - Data Review Supporting Documentation

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

9613424.1723

ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

9613424.1724

ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

9613424.1725

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

OCT 1992 RECEIVED OSM DMO

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0044
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0027
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0012
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0011
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0013
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.001
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

RECORD COPY

Kuang-Chung Tang
Analyst: Kuang C. Tang

Vicki Hoe Lin Tsai
Reviewer: Vicki Hoe-Lin Tsai

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613424.1726

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1727

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

9613424.1728

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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A Sorenson Company

9613424.1729

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 5 of 9
Part 3 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

9613424.1730

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	1.0	.5	.5	.5	.5	.5	.5

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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A Sorenson Company

9613424.1731

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification/Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl chlorendate µg/g	Tetrachloro-meta-xylene µg/g					
B07G67	EL 4176	SOLID	ND*	ND*	.034	.046					
B07G68	EL 4177	SOLID	ND*	ND*	.037	.041					
B07GB2	EL 4178	SOLID	ND*	ND*	.039	.045					
B07GB3	EL 4179	SOLID	ND*	ND*	.033	.041					
B07GC9	EL 4180	SOLID	ND*	ND*	.033	.042					
B07GD0	EL 4181	SOLID	ND*	ND*	.032	.043					
B07GD1	EL 4182	SOLID	ND*	ND*	.031	.042					
B07GF8	EL 4183	SOLID	ND*	ND*	.024	.045					
B07GG0	EL 4184	SOLID	ND*	ND*	.022	.045					
B01855	EL 4185	SOLID	ND*	ND*	.029	.044					
B07G50	EL 4186	SOLID	ND*	ND*	.015	.043					
B07G51	EL 4187	SOLID	ND*	ND*	.023	.043					
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*					

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

9613424.1732

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92

Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*				
* Limit of Detection			.5	.005	NA	NA				

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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A Sorenson Company

9613424.1733

ATTACHMENT 3

Summary of Data Qualifications

9613424.1734

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B07G67	REVIEWER: AS	DATE: 1/28/93	PAGE___OF___
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4,4-DDE	J U at value	B07G67	Not confirmed on conf. column
		B07G68	
		B07GC9	
		B07GD0	
		B07GD1	
		B01855	
Aroclor 1221	J(+)/U(-)	B07G67	PCB Ical was run 4 days before analysis
1232		B07G68	
1242		B07GB2	
1248		B07GB3	
1254		B07GC9	
		B07GD0	
		B07GD1	
		B07GF8	
		B07GG0	
		B01855	
		B07G50	
		B07G51	

9613424.1735

ATTACHMENT 4

As Qualified Data Summary

9613424.1736

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 9
Part 1 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

OCT 1992 RECEIVED OSM DMO

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g	
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0044	J U
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0027	J U
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0012	J U
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0011	J U
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0013	J U
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.001	J
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	

* See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

AS 1/29/93

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Kuang-Chung Tang
Analyst: Kuang C. Tang

Vicki Hoe-Lin Tsai
Reviewer: Vicki Hoe-Lin Tsai

Laboratory Supervisor: Jose C. Danino

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 2 of 9
Part 1 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

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Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND* U)	ND* U)	ND* U)	ND* U)	ND* U)
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

AS 2/9/93

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 6 of 9
Part 3 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	1.0	.5	.5	.5	.5	.5	.5

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
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Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g					
B07G67	EL 4176	SOLID	ND*	ND*	.034	.046					
B07G68	EL 4177	SOLID	ND*	ND*	.037	.041					
B07GB2	EL 4178	SOLID	ND*	ND*	.039	.045					
B07GB3	EL 4179	SOLID	ND*	ND*	.033	.041					
B07GC9	EL 4180	SOLID	ND*	ND*	.033	.042					
B07GD0	EL 4181	SOLID	ND*	ND*	.032	.043					
B07GD1	EL 4182	SOLID	ND*	ND*	.031	.042					
B07GF8	EL 4183	SOLID	ND*	ND*	.024	.045					
B07GG0	EL 4184	SOLID	ND*	ND*	.022	.045					
B01855	EL 4185	SOLID	ND*	ND*	.029	.044					
B07G50	EL 4186	SOLID	ND*	ND*	.015	.043					
B07G51	EL 4187	SOLID	ND*	ND*	.023	.043					
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*					

* See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

9613424.1743

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*				
* Limit of Detection			.5	.005	NA	NA				

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1744

ATTACHMENT 5

Data Review Supporting Documentation

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 300-FF-5	REVIEWER: SWC	DATE: 12/15/92
LABORATORY: Data Chem	CASE:	SDG:
SAMPLES/MATRIX: B07G67, B07G68, B07GB2, B07GB3, B07GC9, B07GD0, B07GD1, B07GF8, B07GG0, B01855, B07G50, B07G51		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓	✓ AS	
Data Summary	✓		
Chain-of-Custody	✓		
QC Summary			
Surrogate report	✓	✓ AS	
MS/MSD report	✓	✓ AS	
Blank summary report	✓	✓ AS	
Sample Data			
Sample reports	✓	✓ AS	
Chromatograms	✓	✓ AS	
GC integration reports	✓	✓ AS	
Worksheets	✓	✓ AS	
UV traces from GPC		✓ AS	✓
GC/MS confirmation spectra		✓ AS	✓
Standards Data			
Pesticides Evaluation Standards Summary	✓ AS	✓ AS 1/20/93	
Pesticides/PCB Standards Summary	✓ AS	✓ AS	
Pesticides/PCB identification	✓	✓ AS	
Pesticides standard chromatograms	✓	✓ AS	
Raw QC Data			
Blank analysis report forms and chromatograms	✓	✓ AS	
MS/MSD report forms and chromatograms		✓ AS	✓

All these were found in the raw data. Because it was a non-CLP deliverable these summary forms are not required.

9613424.1747 Method 8080

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT:	REVIEWER:	DATE:
LABORATORY:	CASE:	SDG:
SAMPLES/MATRIX:		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

NA

Data Package Item	Present?: Yes	No	N/A
Case Narrative	___	___	___
Data Summary	___	___	___
Chain-of-Custody	___	___	___
QC Summary			
Surrogate report	___	___	___
MS/MSD report	___	___	___
Blank summary report	___	___	___
Sample Data			
Sample reports	___	___	___
Chromatograms	___	___	___
GC integration reports	___	___	___
Worksheets	___	___	___
UV traces from GPC	___	___	___
GC/MS confirmation spectra	___	___	___
Standards Data			
Pesticides Evaluation Standards Summary	___	___	___
Pesticides/PCB Standards Summary	___	___	___
Pesticides/PCB identification	___	___	___
Pesticides standard chromatograms	___	___	___
Raw QC Data			
Blank analysis report forms and chromatograms	___	___	___
MS/MSD report forms and chromatograms	___	___	___

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% solids data sheets				
Reduction formulae				
Instrument time logs				
Chemist notebook pages				
Sample preparation sheets				

2. HOLDING TIMES

	Yes	No	N/A
Were all samples extracted within holding time?			
Were all samples analyzed within holding time?			

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

	Yes	No	N/A
Are DDT retention times greater than 12 minutes?			

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

	Yes	No	N/A
Is resolution between DDT peaks acceptable?			

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

	Yes	No	N/A
Do all pesticide standards elute within the established retention time windows?			

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

	Yes	No	N/A
Are DDT breakdowns $\leq$20%?			

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

	Yes	No	N/A
Are endrin breakdowns $\leq$20%?			

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% solids data sheets		___	___	___
Reduction formulae		___	___	___
Instrument time logs		___	___	___
Chemist notebook pages		___	___	___
Sample preparation sheets		___	___	___

2. HOLDING TIMES

Were all samples extracted within holding time? Yes No N/A

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? Yes No N/A

ACTION: If DDT retention time is $\leq$12 minutes and resolution is <25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? Yes No N/A

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes No N/A

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%? Yes No N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%? Yes No N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification?	Yes	No	N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

N/A

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	No	N/A
Have all standards been analyzed within 72 h of any sample?	Yes	No	N/A
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	N/A
Have all standards been analyzed at the start of each 72-h sequence?	Yes	No	N/A
Have evaluation standards A, B, and C been analyzed within 72 h of any sample?	Yes	No	N/A
Has the confirmation standard mix been analyzed after every five samples?	Yes	No	N/A
Has evaluation standard B analyzed every 10 samples?	Yes	No	N/A
Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards?	Yes	No	N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors < 10.0% (< 15.0% for the BHC series, DDT, endrin, and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a noncompliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	No	N/A
Do any samples show nondetects for surrogates?	Yes	No	N/A
Are any method blank surrogates out of specification?	Yes	No	N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for nondetects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated nondetects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	Yes	No	N/A
Are MS/MSD recoveries within specification?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits?	Yes	No	N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations >10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

MIX A LOT: Batch #: 1992-5848

Quant column

Quant 10/22/92

	Lindane		Heptachlor		Aldrin		Heptachlor E.		Endosulfan I		Dieldrin	
Standards	R.T 17.35		R.T. 18.74		R.T. 20.14		R.T. 22.49		R.T. 23.97		R.T. 25.24	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	17447		17717		23881		17101		15941		15123	
~~0.005~~ .005	87896		92338		94027		85651		78010		68821	
~~0.02~~ .01	194520		196829		189398		176923		162109		146513	
~~0.12~~ .05	1300768		1071696		1151686		1008496		944656		862739	
.1	2815517		2248379		2500033		2137767		1996302		1918866	
	r = .999											
Blank	x̄ =											
EL 4176	% RSD =											
77												
78											15846	NC
79							MS 1/21/93				18807	NC
80												
81												
82												
83											25333	NC
84									41773	NC	16485	NC
85												
86												
87											19968	NC
CL	1204423		1048938		1021756		938467		802793		787641	
			NC: Not confirmed									

96B3424.1756

MIX A

Batch #: _____

	Endosulfan II		PPDDT		Endrin Ald.		Endosulfan SO4		Methoxychlor		Endrin Ketone	
Standards	R.T 27.48		R.T. 28.33		R.T. 28.80		R.T. 29.31		R.T. 32.35		R.T. 33.22	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	16326		11014		9010		12539		31398		10630	
0.005	75381		48614		60881		64960		172927		61408	
~~0.02~~ .01	145964		103157		133328		121918		357436		122898	
~~0.12~~ .05	817026		633702		645991		693384		1959326		703355	
.1	1736011		1467150		1357788		1495274		4378416		1555523	
Blank												
EL 4176			60935	NC								
77	36329	NC	36029	NC								
78	24689	NC										
79	33902	NC										
80	63043	NC	16255	NC			AS 1/21/92					
81												
82			16655	NC								
83												
84	32707	NC										
85	48149	NC										
86												
87												
Daily ck	624739		326748		506432		473862		2071604		457763	

96131241757

MIX B

Batch #: _____

	Alpha-BHC		Beta-BHC		Delta-BHC		Isodrin		PPDDE		Endrin		PPDDD	
Standards	R.T 15.66		R.T. 17.63		R.T. 19.19		R.T. 21.99		R.T. 24.82		R.T. 26.73		R.T. 27.08	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	26057		13612		21834		17552		14962		10614		11618	
0.005	99313		61246		87108		78949		76602		38700		50237	
~~0.02~~ .01	208405		132371		196701		174446		176041		97999		108117	
~~0.12~~ .05	1414650		666204		1248121		972628		991453		4814574		608657	
.1	3084719		1369274		2737069		2045835		2157358		900287		1316990	
Blank														
EL 4176									112014	.0044				
77									99549	.0027				
78									29231	NC	15409	NC		
79									32838	NC	24431	NC		
80									37636	.0012	24184	NC		
81									36567	.0011	25719	NC		
82									42022	.0013	27107	NC		
83									22975	NC	20940	NC		
84									26482	NC	18569	NC		
85									31736	.0010				
86														
87									41266	NC	14241	NC		
DailyCK	1366506 ~~1057278~~		627026		1145738		889856		805187		517086		456024	

BATCH #:_____

STANDARDS (UG/ML)	TCMX R.T. 12.74 AREA		DBC R.T. 30.38 AREA		R.T. AREA		R.T. AREA		R.T. AREA		R.T. AREA	
.001	26057		11301									
.005	95439		53725									
.01	200680		153711									
.05	1040279		599692									
.1	2093228		1261181									
		ug/ml	unknown	ug/ml								
Blank	2519982	.1213	1715884	.1372								
EL 4176	1923800	.0926	~~858037~~ ~~821494~~	.0687 ~~.0744~~ .0782								
77	1712813	.0824	915128	.0732								
78	1862872	.0897	979662	.0784								
79	1721212	.0829	817613	.0654								
80	1754383	.0844	813960	.0651								
81	1774291	.0854	808130	.0647								
82	1733980	.0835	763585	.0611								
83	1863620	.0897	604216	.0484								
84	1878778	.0904	559050	.0448								
85	1830001	.0881	718569	.0575								
86	1801406	.0867	384144	.0308								
87	1767965	.0851	561711	.0450								
CL STD	1057279		389460									

0623021.1750

9613424.1760

Batch #: _____

PCB-1016	# 1	# 2	# 3	# 4	# 5	TOTAL	Result
R.T.	15.491	17.259	18.798	19.472	20.030		
~~0.02~~ .1	36269	118541	127275	72015	91451	445551	
0.2							
1.0							
3.0							
							mg/mL wet 4/22/92
LCS1	150496	377458	486306	260846	257849	1532955	.3441

PCB-1260	# 1	# 2	# 3	# 4	# 5	TOTAL	Result
R.T.	26.209	26.520	28.301	28.420	30.547		
~~0.02~~ .1	151081	157613	126397	99901	217029	752021	
0.2							
1.0							
3.0							
							mg/mL wet 4/22/92
LCS1	615452	657316	561027	440351	1016639	3290785	.4376

Chlordane	# 1	# 2	# 3	# 4	# 5	TOTAL	Result
R.T.							
0.004							
0.02							
0.2							
1.0							

DATACHEM LABORATORIES — GC-PESTICIDE ANALYSIS

Project No. 3534

TLE 592-0731

Book No. 2138

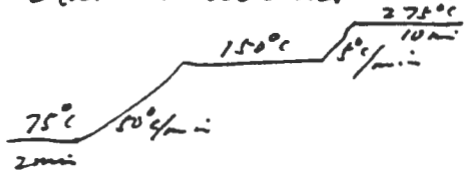
rom Page No. ...

Sample #: Blank, LCS. EL 4176-87

Acct #: 3534 matrix: Soil method: 8080

Date extracted: 10-1-92 Date analyzed: 10-13-92

Experimental conditions: HP 5890 GC/CH 62, 63.



Results in ng/g.

MIX A LOT: Batch #: 1992-5848

	Lindane		Heptachlor		Aldrin		Heptachlor E.		Endosulfan I		Dieldrin	
Standards	R.T. 17.35		R.T. 19.79		R.T. 20.19		R.T. 22.49		R.T. 23.93		R.T. 25.29	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	17492		17217		23881		17101		15941		15123	
0.005 .005	97396		92333		94027		85651		7900		68824	
~~0.01~~ .01	194570		196327		197978		176923		162109		146513	
~~0.05~~ .05	1360768		1071696		1171696		1007996		9[illegible].56		962789	
.1	2815517		2245239		2500033		2137763		1996302		1913826	
Blank												
EL 4176			—									
77												
78											15846	NC
79											17803	NC
80												
81												
82												
83											23333	NC
84									41333	NC	16485	NC
85												
86												
87											19[illegible]8	NC
CL	1204423		1049935		1020056		938467		802793		787641	
			NC. not confirmed									

	Endosulfan II		PPDDT		Endrin Ald.		Endosulfan SO4		Methoxychlor		Endrin Ketone	
Standards	R.T. 27.49		R.T. 28.33		R.T. 29.90		R.T. 29.31		R.T. 32.35		R.T. 33.22	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
0.0005 .001	16226		11014		9016		12539		31399		10630	
0.005	75291		49614		60981		64[illegible]		172927		61908	
~~0.01~~ .01	147964		105152		133379		121917		352936		122898	
~~0.05~~ .05	917026		633202		699991		693334		1999326		703355	
1	1336011		1472150		1353393		1495274		4373416		1553323	
Blank												
EL 4176			[illegible]	NC								
77	36379	NC	26078	NC								
78	[illegible]	NC										
79	53102	NC										
80	63043	NC	11255	NC								
81												
82			11[illegible]	NC								
83												
84	32702	NC										
85	79109	NC										
86												
87												
Daily Std	124739		1[illegible]		[illegible]		439362		2071604		755263	

IC 10/20/92

To Page No. ...

Witnessed & understood by me: 10/22/92

Prepared by

Date

Recorded by

10-20-92

9613429.1762

	Alpha-BHC		Beta-BHC		Delta-BHC		Isodrin		PPDDE		Endrin		PPDDD	
Standards	RT 15.66		RT 17.63		RT 19.09		RT 21.97		RT 24.82		RT 26.73		RT 27.08	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	26657		13612		21834		17552		19962		10614		11669	
0.005	99313		612496		87109		78999		76602		38700		50237	
~~.005~~ .01	208105		1323721		196701		174996		176041		97999		108117	
~~.01~~ .05	1099650		6462094		1099121		972628		991953		481052		609637	
.1	3099119		13199274		2273069		2045835		2023358		900183		1316990	
Blank														
EL 9176									17204	.0049				
767									99700	.0027				
78									29231	NC	15909	NC		
79									32938	NC	24431	NC		
80									37636	.0012	24184	NC		
81									36583	.0011	25719	NC		
82									92022	.0018	29107	NC		
83									22975	NC	20990	NC		
84									26492	NC	19569	NC		
85									51736	.0010				
86														
87									41266	NC	19299	NC		
Resp Ck	1966200		6270216		1145739		838958		805197		517096		456024	

RCT 10/20/92

Batch #: _____

PCB-1016	#1	#2	#3	#4	#5	TOTAL	Result
RT	15.491	17.259	18.798	19.472	20.050		
Std .1	26269	1185401	1292275	720015	910051	4445551	
0.2							
1.0							
3.0							
EL 9176	1504498	2274578	2663306	2608846	2537549	12137955	.1441

PCB-1260	#1	#2	#3	#4	#5	TOTAL	Result
RT	26.209	28.520	28.701	28.920	30.247		
Std .1	1510051	1576613	1263597	999201	2170229	7522021	
0.2							
1.0							
3.0							
EL 9176	6104550	6573516	5610027	4405571	10166619	32907285	.0176

RCT 10/20/92

	[illegible]		[illegible]	
Standards	RT 12.774		RT 30.59	
(µg/mL)	Area		Area	
.001	26057		11301	
.005	95439		533755	
.01	2006490		1532711	
.05	10970279		5999692	
.1	20932278		12611191	
Blank	2519492	.0013	1715314	.0172
EL 9176	1933800	9466	8787557	.0667
767	1178813	.0224	915128	.0112
78	962872	.0197	979662	.0184
79	1321212	.0159	917613	.0174
80	1759483	.0144	917900	.0157
81	1734291	.0154	528135	.0103
82	1733950	.0155	763585	.0111
83	1463670	.0137	509216	.0134
84	1378778	.0147	558050	.0148
85	1330551	.0181	712569	.0175
86	1801406	.0167	389199	.0169
87	1767965	.0151	561711	.0150
EL 5270	1257279		389960	

9613424.1763

Calculations

HARTCROWSER

Page 1 of 2

Job No. 2978-50

Project WHC 300-FF-5

Date 1/20/93

Calculations for Ical quant column Pest/PCB tissues

Made by AS

~~Lindane:~~ Mix A

Lindane	Calibration factor	Calibration factor Heptachlor	Calibration factor Endosulfan II
.001	17447000	17101000	16326000
.005	17579200	17130200	15076200
.01	19452000	17692300	14596400
.05	26015360	20169920	16340520
~~.01~~ .1	28155770	21377670	17360110
$\bar{X}$	21729866	49494218	$\bar{X}$ = 15939846
%RSD	23%	3.9%	%RSD = 6.9%

Heptachlor		Endosulfan I	PPDDT
.001	17717000	15941000	11014000
.005	18467600	15602000	9722800
.01	19682900	16210900	10315700
.05	21432920	18893120	12674040
.1	22483790	19963020	14671500
$\bar{X}$	19956842	17322008	$\bar{X}$ = 11679608
%RSD.	10%	11.4%	%RSD = 17.2%

Aldrin		Dieldrin	Endrin Ald.
.001	23881000	15123000	9010000
.005	18805400	1376420	12176200
.01	18939800	14651300	13332800
.05	23033720	17254780	12919820
.1	25000330	19188660	13577830
$\bar{X}$ =	21932050	$\bar{X}$ = 13518832	$\bar{X}$ = 12203330
%RSD =	13.1%	%RSD = 51.9%	%RSD = 15.3%

I .2 min

IS @ 23 min

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Calculations

HARTCROWSER

Page 2 of 2

Job No.

Project

Date

Calculations for

Made by

Mix B

Endosulfan ~~Lindane~~ Sou	Calib. factor	Alpha-BHC	Isodrin
.001	12539000	26057000	17552000
.005	12992000	19862600	15789800
.01	12191800	20840500	17444600
.05	13867680	28293000	19452560
.10	14952740	30847190	20458352
$\bar{X}$	13308644	$\bar{X}$ = 25180058	$\bar{X}$ = 18139462
% RSD	8.4 %	% RSD = 18.8 %	% RSD = 10.1 %
Methoxychlor		Beta-BHC	~~PP~~DDE
.001	31398000	13612000	14962000
.005	34585400	12249200	15320400
.01	35743600	13237100	17604100
.05	39186520	13324080	19829060
.10	43784160	13692740	21573580
$\bar{X}$	36939536	$\bar{X}$ = 13223024	$\bar{X}$ = 17857828
% RSD	12.8 %	% RSD = 4.4%	% RSD = 16.0 %

Endrin Ketone		Delta-BHC	Endrin
.001	16630000	21834000	10614000
.005	12281600	17421600	7740000
.01	12289800	19670100	9799900
.05	14067100	24962420	8429140
.1	15555230	27370690	9002870
$\bar{X}$	12964746	$\bar{X}$ = 22251762	$\bar{X}$ = 9117182
% RSD	14.6 %	% RSD = 19.9%	% RSD = 12.4 %
			~~PP~~DDD
			.001 11618000
			.005 10047400
			.01 10811700
			.05 12173140
			.1 13169900
			$\bar{X}$ = 11564028
			% RSD = 10.4%

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9613424.1769

HOLDING TIME SUMMARY - FORM B-1

SDG: B07G67	REVIEWER: AS	DATE: 1/19/93	PAGE___OF___
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07G67	Pest/PCB	Not provided Assume ~~9/24/92~~ 8/92	10/1/92	10/13/92		12	—
B07G68							
B07GB2							
B07GB3							
B07GC9							
B07GD0							
B07GD1							
B07GF8							
B07GG0							
B01855							
B07G50							
B07G51							

CALIBRATION DATA SUMMARY - FORM B-2

SDG: B87C67	REVIEWER: AS	DATE: 1/20/93	PAGE____OF____		
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
10/12/92	Lindane		23%	—	—
	Dieldrin		51.9%	—	—
	All others Pesticide %RSD acceptable				
	= 3.9% — 18.8%				
10/13/92	Heptachlor E		%D = 62%		Calibrations exceeded
	PPDDT		%D = 44%		after analysis of
	All other pesticides = 3 — 21.6%				the samples.
	All DDT results are	> 12.0	minutes		
	PCB calibrations were	analyzed	4 days	before the	
	samples except for PCB 1016 & 1260			All Samples	J(+)/U(-)
	All confirmation column	compound results	were not	labeled.	

Primary column Ical

Primary column.

B-2 Ical

Confirm column

None of these compounds were detected. No data qualifiers are recommended

WHC-SD-EN-SPP-002, Rev. 1

9213H766

96134.1767

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 1767	REVIEWER: HS	DATE: 1/21/93	PAGE___OF___

COMMENTS:

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
Hexane 1	Hexane	ND						—	—
Blank 1	Not submitted								
Hexane 21	Hexane	ND						—	—
Hexane 27	Hexane	ND						—	—
Hexane 30	Hexane	ND						—	—

9613424.1768

ACCURACY DATA SUMMARY - FORM B-4

SDG: B07G67	REVIEWER: AS	DATE: 1/21/93	PAGE____OF____	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
All surrogates 30 – 92 % for TCMX + DCB.				
* No MS/MSD was performed due to insufficient sample				ok
				No data qual. required.
PCB-1016	LCS	69%	—	—
PCB-1260		88 %	—	—

PRECISION DATA SUMMARY - FORM B-5

SDG:	REVIEWER	DATE:	PAGE___OF___
COMMENTS:			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER

NA

CALCULATION SUMMARY - FORM B-6

SDG: B07G67	REVIEWER: AS	DATE: 1/22/93	PAGE___OF___

COMMENTS:

B07G67 = $\frac{172014(1\,mg)(10000\,10\,ml)}{17857828\,(1)(18.72)}$ = 5.21 ug/kg
17604100

= .00521 ug/g

B07G68 = $\frac{99549(10000)}{17604100(1)(17.02)}$ = 3.32 ug/kg

= .00332 ug/g

B07GC9 = $\frac{37636(10000)}{17604100\,(19.58)}$ = 1.091 ug/kg

= .00109 ug/kg

B07GD0 = $\frac{36567(10000)}{17604100\,(17.35)}$ = ~~1.972~~ 1.197 ug/kg = .00197 ug/g

B07GD1 = $\frac{31736\,(10000)}{17604100\,(17.22)}$ = 1.0469 ug/kg = .00104 ug/g

*. All detected results are within the retention time window criteria.

No PCBs detected.

9613424.1771

Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Date 1/21/93

Made by AS

Project WHC

Calculations for CK A & B Pest/PCB

Compd.	Ical $\bar{x}$	ccal	% D
Lindane	21729866	24088460	~~10%~~ 10.1% ✓
Heptachlor	19956842	20978760	5.1% ✓
Aldrin	21932050	20435120	6.8% ✓
Heptachlor E.	49494218	18769340	62%
Endosulfan I	17322008	16055860	7.3% ✓
Dieldrin	13518832	15752820	16.5% ✓
Endosulfan II	15939846	12494780	21.6% ✓
PP DDT	11679608	6534960	44.0%
Endrin Ald.	12203330	16128640	17.0% ✓
Endosulfan SO4	13308644	9477240	28.8%
Methoxychlor	43784160	41832080	4.5%
Endrin ketone	12964746	9155260	29.4%
Alpha-BHC	25180058	27210120	8.0% ✓
Beta-BHC	13223024	12540520	5.1% ✓
Delta-BHC	22251762	22914760	3.0% ✓
Isodrin	18139462	17797120	18.9% ✓
PPDDE	17857828	16103740	9.8% ✓
PPDDD	11564028	9120480	21.1% ✓
Endrin	9117182	10341720	13.4% ✓

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9613424.1772

09-079

PO4
TSS/TDS

Calculations

HARTCROWSER

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Job No. 2978-50

Project WHC

Date 1/21/93

Calculations for Surrogate %R TCMX & DBC

Made by AS

		DBC	TCMX	%R DBC	%R TCMX
~~B06~~	B07G67	~~.069~~ .034	~~.061~~ .046	68%	92%
	B07G68	~~.034~~ .037	.041	74%	82%
	B07GB2	~~.037~~ .039	.045	78%	90%
	B07GB3	~~.039~~ .033	.041	66%	82%
	B07GC9	~~.033~~ .033	.042	66%	84%
	B07GD0	~~.033~~ .032	.043	64%	86%
	B07GD1	~~.032~~ .031	.042	62%	84%
	B07GF8	~~.031~~ .024	.045	48%	90%
	B07GG0	~~.024~~ .022	.045	44%	90%
	B01855	~~.022~~ .029	.044	58%	88%
	B07G50	~~.029~~ .015	.043	30%	86%
	B07G51	.023	.043	46%	86%

EN-047

9295-L91C
09-047

Recycled Paper

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Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Project LUHC

Date 1/22/93

Calculations for RT Check

Made by AS

	Detected compound	RT Sample	RT Std	ok ✓
4176	PRODE	24.825	24.82	✓
4177	↓	24.816	↓	✓
4180		24.806		✓
4181		24.803		✓
4182		24.805		✓
4185		24.812		✓

Recycled Paper

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Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Project WHC

Date 1/29/93

Calculations for % Breakdown 4,4-DDT + Endrin

Made by AS

Mix A % Breakdown DDT = $\frac{\overset{DDE}{4113} + \overset{DDD}{14052}}{\underset{DDT}{633702} + \underset{DDD}{14052} + \underset{DDE}{4113}} = 2.8\%$

Mix B % Breakdown ~~DDE~~ Endrin = $\frac{\cancel{645991 + 703355}}{\cancel{4615} + 645991 + 703355} =$

$\frac{\overset{endrin\ A}{126446} + \overset{endrin\ K}{106883}}{\underset{endrin}{421457} + \underset{endrin\ A}{126446} + \underset{endrin\ K}{106883}} = 35.6\%$

Recycled Paper

by Master DP File Number

~~Lab Branch~~ DAT Laboratory

HEIS Samp Number	Client Sample Number	Master DP File Number	DP Sequence Number	Project	Y N VOA	Y N SEMI VOA	Y N PEST/PCB	Y N WETCHEM	Y N METALS	COMMENTS	Y N RADCHEM	Date OSM Rcvd DP
B01855		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07G50		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07G51		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07G67		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07G68		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GB2		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GB3		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GC9		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GD0		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GD1		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GF8		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92
B07GG0		B07G67	188	300-FF-5	N	N	Y 10/29/92	N	N	09/25/92	N	10/29/92

Total Heis Numbers -- 12
Total Client Numbers -- 0

Total Samples Complete -- 12

Final Quality Assurance Reports

Rcvd 8-23-93

8/23/93

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FINAL VALIDATION REPORT

9613424.1777

HARTCROWSER

Earth and Environmental Technologies

Hart Crowser, Inc.
1201 Jadwin Avenue, Suite 204
Richland, Washington 99352
FAX 509.946.4203
509.946.4344

RECEIVED
AUG 23 1993
VALIDATION DOCUMENTATION
SDLA

J-2978-50

August 23, 1993

AUG 1993
RECEIVED
TQO

Ms. Jeanette Duncan
Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

Re: WHC Order No. MLW-SVV-037106
Task Order No. E-93-16
Return of Final Quality Assurance Reports

Dear Ms. Duncan:

Enclosed please find the Final Quality Assurance Reports (FQARs) listed in the attachment to this letter from the 300-FF-5 Remedial Investigation (RI). Please contact me if you have any questions with regard to the materials being returned to you.

Sincerely,

HART CROWSER, INC.

D. MARK GERBOTH, P.E.
Task Manager
HC#137:RL1913.DOC

cc: L. Hulstrom, (WHC, MSIN H6-03)
300-FF-5 Project File (HCRL-WHC/9306-L-93-157)

Attachment - Final Quality Assurance Reports Returned to Westinghouse Hanford, August 23, 1993.

Data Returned to Westinghouse Hanford
August 23, 1993

Sample Delivery Group Number	Case Numbers	Project	Work Completed: Verified	Work Completed: Validated	Data included with this transmittal: ODP	VCL	PQAR	FQAR
B01852-TMA-294	N2-09-193	300-FF-5	X	X				X
B07G67-DAT-188	B07G67	300-FF-5	X	X				X

Notes:
ODP = Original Data Package
VCL = Verification Checklist
PQAR = Preliminary Quality Assurance Report
FQAR = Final Quality Assurance Record

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9613424.1779

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AUG 2 3 1993
VALIDATION DOCUMENTATION
SELF

THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

Attachment 1 - Glossary of Data Qualifiers

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

Attachment 2 - As Received Laboratory Sample Concentration Reports

This attachment provides copies of the as-received sample concentration reports.

Attachment 3 - Summary of Data Qualifications

This attachment provides a complete summary of all qualifications applied as a result of the validation.

Attachment 4 - As Qualified Data Summary

This attachment provides a tabular data summary or copies of the annotated sample concentration reports as qualified from the validation.

Attachment 5 - Data Review Supporting Documentation

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

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ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

9613424.1782

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 9
Part 1 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

OCT 1992 RECEIVED OSM DMO

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0044
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0027
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0012
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0011
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0013
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.001
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

* See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

RECORD COPY

Kuang Chung Tang
Analyst: Kuang C. Tang

Vicki Hoe Lin Tsai
Reviewer: Vicki Hoe-Lin Tsai

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613424.1783

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1784

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
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NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

9613424.1786

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	1.0	.5	.5	.5	.5	.5	.5

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl chlorendate µg/g	Tetrachloro-meta-xylene µg/g					
B07G67	EL 4176	SOLID	ND*	ND*	.034	.046					
B07G68	EL 4177	SOLID	ND*	ND*	.037	.041					
B07GB2	EL 4178	SOLID	ND*	ND*	.039	.045					
B07GB3	EL 4179	SOLID	ND*	ND*	.033	.041					
B07GC9	EL 4180	SOLID	ND*	ND*	.033	.042					
B07GD0	EL 4181	SOLID	ND*	ND*	.032	.043					
B07GD1	EL 4182	SOLID	ND*	ND*	.031	.042					
B07GF8	EL 4183	SOLID	ND*	ND*	.024	.045					
B07GG0	EL 4184	SOLID	ND*	ND*	.022	.045					
B01855	EL 4185	SOLID	ND*	ND*	.029	.044					
B07G50	EL 4186	SOLID	ND*	ND*	.015	.043					
B07G51	EL 4187	SOLID	ND*	ND*	.023	.043					
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*					

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

9613424.1789

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 8 of 9
Part 4 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*				
* Limit of Detection			.5	.005	NA	NA				

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1790

ATTACHMENT 3

Summary of Data Qualifications

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: B07G67	REVIEWER: AS	DATE: 1/28/93	PAGE___OF___
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
4,4-DDE	J U at value	B07G67	Not confirmed on conf. column.
		B07G68	
		B07G69	
		B07GD0	
		B07GD1	
		B01855	
Aroclor 1221	J(+)/U)(-)	B07G67	PCB Ical was run 4
1232		B07G68	days before analysis
1242		B07GB2	
1248		B07GB3	
1254		B07GC9	
		B07GD6	
		B07GD1	
		B07GF8	
		B07GG0	
		B01855	
		B07G50	
		B07G51	

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ATTACHMENT 4

As Qualified Data Summary

9613424.1793

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-AL
Page 1 of 9
Part 1 of 4

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

OCT 1992 RECEIVED OSM DMO

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g	
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0044	
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0027	
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0012	
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0011	
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.0013	
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	.001	J
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*	

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

RECORD COPY

Analyst: Kuang C. Tang

Reviewer: Vicki Hoe-Lin Tsai

Laboratory Supervisor: Jose C. Danino

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613424.1794

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aldrin µg/g	alpha-BHC µg/g	Beta-BHC µg/g	Delta-BHC µg/g	Lindane µg/g	Chlordane µg/g	4,4'-DDD µg/g	4,4'-DDE µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

960 West LeVoy Drive / Salt Lake City, Utah 84123-2547 / (801) 266-7700
A Sorenson Company

9613424.1795

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan Sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

* See comment on last page.
ND Parameter not detected.
NR Parameter not requested.
** See comment on last page.
( ) Parameter between LOD and LOQ.

9613424.1796

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 4 of 9
Part 2 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	4,4'-DDT µg/g	Dieldrin µg/g	Endosulfan I µg/g	Endosulfan II µg/g	Endosulfan sulfate µg/g	Endrin µg/g	Endrin aldehyde µg/g	Heptachlor µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
Limit of Detection			.0005	.0005	.0005	.0005	.0005	.0005	.0005	.0005

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1797

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
B07G67	EL 4176	SOLID	ND*	ND*	ND*	ND* U)	ND* U)	ND* U)	ND* U)	ND* U)
B07G68	EL 4177	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB2	EL 4178	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GB3	EL 4179	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GC9	EL 4180	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD0	EL 4181	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GD1	EL 4182	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GF8	EL 4183	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07GG0	EL 4184	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B01855	EL 4185	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G50	EL 4186	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
B07G51	EL 4187	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*

AS 2/9/93

† See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

9613424.1798

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Form ARF-BL
Page 6 of 9
Part 3 of 4

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Heptachlor epoxide µg/g	Toxaphene µg/g	Aroclor 1016 µg/g	Aroclor 1221 µg/g	Aroclor 1232 µg/g	Aroclor 1242 µg/g	Aroclor 1248 µg/g	Aroclor 1254 µg/g
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
* Limit of Detection			.0005	1.0	.5	.5	.5	.5	.5	.5

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1799

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification/Number S92-0731
Account No. 3534C

Westinghouse Hanford Company
2355 Stevens Drive
MSIN T6-08
Richland, WA 99352
Attention: Jeanette Duncan

FAX (509) 373-3992
Telephone (509) 373-3225

Sampling Collection and Shipment

Sampling Site _____ Date of Collection September 25, 1992

Date Samples Received at Laboratory September 25, 1992

Analysis

Method of Analysis EPA 8080

Date(s) of Analysis October 13, 1992

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
B07G67	EL 4176	SOLID	ND*	ND*	.034	.046				
B07G68	EL 4177	SOLID	ND*	ND*	.037	.041				
B07GB2	EL 4178	SOLID	ND*	ND*	.039	.045				
B07GB3	EL 4179	SOLID	ND*	ND*	.033	.041				
B07GC9	EL 4180	SOLID	ND*	ND*	.033	.042				
B07GD0	EL 4181	SOLID	ND*	ND*	.032	.043				
B07GD1	EL 4182	SOLID	ND*	ND*	.031	.042				
B07GF8	EL 4183	SOLID	ND*	ND*	.024	.045				
B07GG0	EL 4184	SOLID	ND*	ND*	.022	.045				
B01855	EL 4185	SOLID	ND*	ND*	.029	.044				
B07G50	EL 4186	SOLID	ND*	ND*	.015	.043				
B07G51	EL 4187	SOLID	ND*	ND*	.023	.043				
MATRIX SPIKE	EL 4187MS	SOLID	ND*	ND*	ND*	ND*				

* See comment on last page. ** See comment on last page.
ND Parameter not detected. ( ) Parameter between LOD and LOQ.
NR Parameter not requested.

9613424.1800

DATA CHEM LABORATORIES

ANALYTICAL REPORT

Date 10/23/92
Agency Identification Number S92-0731

Analytical Results

Field Sample Number	Laboratory Number	Sample Type	Aroclor 1260 µg/g	Methoxychlor µg/g	Dibutyl Chlorendate µg/g	Tetrachloro-meta-xylene µg/g				
MTRX SPK DUP	EL 4187MSD	SOLID	ND*	ND*	ND*	ND*				
Limit of Detection			.5	.005	NA	NA				

† See comment on last page.
ND Parameter not detected.
NR Parameter not requested.

** See comment on last page.
( ) Parameter between LOD and LOQ.

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9613424.1801

ATTACHMENT 5

Data Review Supporting Documentation

9613424.1802

EPA Method 8080

WHC-SD-EN-SPP-002, Rev. 1

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 200-FF-5	REVIEWER: SWC	DATE: 12/15/92
LABORATORY: Data Chem	CASE:	SDG:
SAMPLES/MATRIX: B07G67, B07G68, B07GB2, B07GB3, B07GC9, B07GD0, B07GD1, B07GF8, B07GG0, B01855, B07G50, B07G51		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓	✓ AS	
Data Summary	✓		
Chain-of-Custody	✓		
QC Summary			
Surrogate report	✓	✓ AS	
MS/MSD report	✓	✓ AS	
Blank summary report	✓	✓ AS	
Sample Data			
Sample reports	✓	✓ AS	
Chromatograms	✓	✓ AS	
GC integration reports	✓	✓ AS	
Worksheets	✓	✓ AS	
UV traces from GPC		✓ AS	✓
GC/MS confirmation spectra		✓ AS	✓
Standards Data			
Pesticides Evaluation Standards Summary	✓ AS	✓ AS 1/20/93	
Pesticides/PCB Standards Summary	✓ AS	✓ AS	
Pesticides/PCB identification	✓	✓ AS	
Pesticides standard chromatograms	✓	✓ AS	
Raw QC Data			
Blank analysis report forms and chromatograms	✓	✓ AS	
MS/MSD report forms and chromatograms		✓ AS	✓

All these were found in the raw data. Because it was a non CLP delivery these summary forms are not required.

9613424.1803

Method 8080

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT:	REVIEWER:	DATE:
LABORATORY:	CASE:	SDG:
SAMPLES/MATRIX:		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for resubmittal.

NA

Data Package Item	Present?: Yes	No	N/A
Case Narrative	___	___	___
Data Summary	___	___	___
Chain-of-Custody	___	___	___
QC Summary			
Surrogate report	___	___	___
MS/MSD report	___	___	___
Blank summary report	___	___	___
Sample Data			
Sample reports	___	___	___
Chromatograms	___	___	___
GC integration reports	___	___	___
Worksheets	___	___	___
UV traces from GPC	___	___	___
GC/MS confirmation spectra	___	___	___
Standards Data			
Pesticides Evaluation Standards Summary	___	___	___
Pesticides/PCB Standards Summary	___	___	___
Pesticides/PCB identification	___	___	___
Pesticides standard chromatograms	___	___	___
Raw QC Data			
Blank analysis report forms and chromatograms	___	___	___
MS/MSD report forms and chromatograms	___	___	___

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

Are DBC retention time differences within specification?	Yes	No	N/A

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	No	N/A
Have all standards been analyzed within 72 h of any sample?	Yes	No	N/A
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	N/A
Have all standards been analyzed at the start of each 72-h sequence?	Yes	No	N/A
Have evaluation standards A, B, and C been analyzed within 72 h of any sample?	Yes	No	N/A
Has the confirmation standard mix been analyzed after every five samples?	Yes	No	N/A
Has evaluation standard B analyzed every 10 samples?	Yes	No	N/A
Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards?	Yes	No	N/A

N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72-h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the noncompliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and nondetect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the blanks? Yes No N/A

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5 times the highest valid field blank concentrations as nondetects (U) and note the results in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are > 5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

Are field duplicate RPD values acceptable? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

Are field split RPD values acceptable? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations > 10 ppm? Yes No N/A

COMMENTS (attach additional sheets as necessary):

MIX A LOT: Batch #: 1992-5848

Inst 10/22/92

	Lindane		Heptachlor		Aldrin		Heptachlor E.		Endosulfan I		Dieldrin	
Standards	R.T 17.35		R.T. 18.79		R.T. 20.14		R.T. 22.49		R.T. 23.97		R.T. 25.24	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	17447		17717		23881		17101		15941		15123	
~~0.005~~ .005	87896		92338		94027		85651		78010		68821	
~~0.02~~ .01	194520		196829		189398		176923		162109		146513	
~~0.12~~ .05	1300768		1071646		1151686		1008496		944656		862739	
.1	2815517		2248379		2500033		2137767		1996302		1918866	
	r = .999											
Blank	X =											
BL 4176	% RSD =		Inst									
77												
78											15846	NC
79											18807	NC
80												
81												
82												
83											25333	NC
84									41773	NC	16485	NC
85												
86												
87											19468	NC
CL	1204423		1048938		1021056		938467		802793		787641	
			NC: Not confirmed									

AS 1/21/93

96134241808

MIX A

Batch #: _____

	Endosulfan II		PPDDT		Endrin Ald.		Endosulfan SO4		Methoxychlor		Endrin Ketone	
Standards	R.T 27.48		R.T. 28.33		R.T. 28.50		R.T. 29.31		R.T. 32.35		R.T. 33.22	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.005~~ .001	16326		11014		9010		12539		31398		10630	
0.005	75381		48614		60881		64960		172927		61408	
~~0.02~~ .01	145964		103157		133328		121918		357436		122898	
~~0.12~~ .05	817026		633702		645991		693384		1959326		703355	
.1	1736011		1467150		1357788		1495274		4378416		1555523	
Blank												
EL 4176			60935	NC								
77	36329	NC	36029	NC								
78	24689	NC										
79	33902	NC										
80	63043	NC	16255	NC								
81												
82			16655	NC								
83												
84	32707	NC										
85	48149	NC										
86												
87												
Daily ck	624739		326748		506432		473862		2071604		457763	

AS 1/21/97

00013474 1809

MIX B

Quant column

Batch #: _____

	Alpha-BHC		Beta-BHC		Delta-BHC		Isodrin		PPDDE		Endrin		PPDDD	
Standards	R.T 15.66		R.T. 17.63		R.T. 19.19		R.T. 21.99		R.T. 24.82		R.T. 26.73		R.T. 27.08	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
~~0.0005~~ .001	26057		13612		21834		17552		14962		10614		11618	
0.005	99313		61246		87108		78949		76602		38700		50237	
~~0.02~~ .01	208405		132371		196701		174446		176041		97999		108117	
~~0.12~~ .05	1414650		666204		1248121		972628		991453		4814574		608657	
.1	3084719		1369274		2737069		2045835		2157358		900287		1316990	
Blank														
EL 4176									42014	.0044				
77									99599	.0027				
78									29231	NC	15409	NC		
79									32938	NC	24431	NC		
80									37656	.0012	24184	NC		
81									36567	.0011	25719	NC		
82									42022	.0013	27107	NC		
83									22975	NC	20940	NC		
84									26482	NC	18569	NC		
85									31736	.0010				
86														
87									41266	NC	14241	NC		
DailyCK	1366506 ~~1057278~~		627026		1145738		889856		805187		517086		456024	

1/21/93

96134124.8810

BATCH #:_____

STANDARDS (UG/ML)	TCMX R.T. 12.74 AREA		DBC R.T. 30.38 AREA		R.T. AREA		R.T. AREA		R.T. AREA		R.T. AREA	
.001	26057		11301									
.005	95739		53725									
.01	200680		153711									
.05	1040279		599692									
.1	2093228		1261181									
		ug/mL	ug/mL	ug/mL								
Blank	2519982	.1213	1715814	.1372								
EL 4176	1923800	.0926	~~[illegible]~~	~~[illegible]~~								
77	1712813	.0824	915128	.0732								
78	1862872	.0897	979662	.0784								
79	1721212	.0829	817613	.0654								
80	1754383	.0844	813960	.0651								
81	1774291	.0854	808130	.0647								
82	1733980	.0835	763585	.0611								
83	1863670	.0897	604216	.0484								
84	1879778	.0904	559050	.0448								
85	1830001	.0881	718569	.0575								
86	1801406	.0867	384144	.0308								
87	1767965	.0851	561711	.0450								
CC STD	1057279		389460									

9613424.1812

Batch #: _____

PCB-1016	# 1	# 2	# 3	# 4	# 5	TOTAL	Result
R.T.	15.491	17.259	18.798	19.472	20.030		
~~0.02~~ .1	36269	118541	127275	72015	91451	445551	
0.2							
1.0							
3.0							
							mg/mL WST 9/22/92
LCS1	150496	377458	486306	260846	257849	1532955	.3441

PCB-1260	# 1	# 2	# 3	# 4	# 5	TOTAL	Result
R.T.	26.209	26.520	28.301	28.420	30.547		
~~0.02~~ .1	151081	157613	126397	99901	217029	752021	
0.2							
1.0							
3.0							
							mg/mL WST 9/22/92
LCS1	615452	657316	561027	440357	1016639	3290785	.4376

Chlordane	# 1	# 2	# 3	# 4	# 5	TOTAL	Result
R.T.							
0.004							
0.02							
0.2							
1.0							

DATACHEM LABORATORIES — GC-PESTICIDE ANALYSIS

Project No. 3534

TITLE 592-0731

Book No. 2138

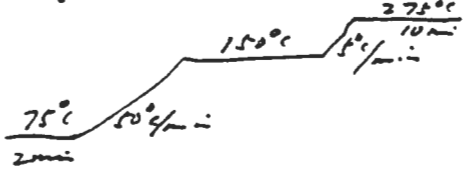
From Page No. ...

Sample #: Blank, LCS, EL 4176-87

Acct #: 3534 matrix: Soil method: 8080

Date extracted: 10-1-92 Date analyzed: 10-13-92

Experimental conditions: HP 5890 GC/CH62, 63.



results in ng/g.

MIX A LOT: Batch #: 1992-5148

Standards (µg/mL)	Lindane R.T. 17.55 Area	Result	Heptachlor R.T. 19.79 Area	Result	Aldrin R.T. 20.19 Area	Result	Heptachlor E. R.T. 22.09 Area	Result	Endosulfan I R.T. 23.93 Area	Result	Dieldrin R.T. 25.29 Area	Result
0.0005 .001	17442		17212		23831		17101		15941		15123	
0.005 .005	97396		92333		94022		35651		78010		68834	
0.01 .01	1194570		1162329		1379373		1176923		1162109		1146513	
0.05 .05	1360768		1371.6796		1371698		1008396		9[illegible].56		962739	
.1	2915517		2245239		2500033		2137762		1996302		1913866	
Blank												
EL 4176			—									
72												
78											15846	NC
79											19903	NC
90												
91												
92												
93											27323	NC
94									41773	NC	16495	NC
95												
96												
97											1945	NC
CVL	1204449		1044935		1021056		938467		902793		787641	
			NC not confirmed									

Standards (µg/mL)	Endosulfan II R.T. 27.49 Area	Result	PPDDT R.T. 28.53 Area	Result	Endrin Ald. R.T. 29.90 Area	Result	Endosulfan SO4 R.T. 29.31 Area	Result	Methoxychlor R.T. 32.35 Area	Result	Endrin Ketone R.T. 33.22 Area	Result
0.0005 .001	16226		11014		9010		12534		31399		10630	
0.005	75381		44614		60981		64[illegible]		172927		61409	
0.01 .01	1437964		1053152		1323379		1214[illegible]17		3524936		1232398	
0.05 .05	917026		6335202		6[illegible]1		6933534		19594326		7033355	
1	1396011		14[illegible]150		1352398		1995174		4937446		1553323	
Blank												
EL 4176			[illegible]	NC								
77	3379	NC	76070	NC								
78	[illegible]	NC										
79	43202	NC										
90	67043	NC	11355	NC								
91												
92			11[illegible]54	NC								
93												
94	12702	NC										
95	79100	NC										
96												
97												
Daily Cal	1246779		1[illegible]709		7[illegible]32		4[illegible]22		2071604		757263	

KT 10/20/92

To Page No. ...

Witnessed & Understood by me: V. [illegible] 10/22/92

Invented by

Recorded by [illegible]

Date 10-20-92

9613424.1814

	Alpha-BHC		Beta-BHC		Delta-BHC		Isodrin		PPDDE		Endrin		PPDDD	
Standards	RT 15.66		RT 17.63		RT 19.[illegible]		RT 21.[illegible]		RT 24.32		RT 26.73		RT 27.08	
(µg/mL)	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result	Area	Result
0.0005 .001	26657		13612		21934		17552		19962		10614		11619	
0.001	49313		61246		87109		78949		76607		38700		50237	
.01	208[illegible]		132321		196301		174446		176001		97999		108112	
.05	1044650		666204		1299121		977628		991953		481952		609637	
.1	3099719		1369274		2733049		2045835		2032338		930183		1316290	
Blank														
EL 4176									17204	.0049				
767									9[illegible]	.0027				
78									29131	NC	15909	NC		
79									32958	NC	24431	NC		
80									37636	.0013	29494	NC		
81									34863	[illegible]	25719	NC		
82									42022	.0018	29103	NC		
83									22975	NC	20930	NC		
84									26492	NC	19519	NC		
85									51736	.0010				
86														
87									41266	NC	19299	NC		
Dup Cyl	1356206		627024		1195739		889956		805197		517086		456024	

KCT 10/20/92

Batch #: _____

PCB-1016	#1	#2	#3	#4	#5	TOTAL	Result
RT	15.491	17.259	18.798	19.472	20.050		
.1	36269	118541	137375	72015	91051	445251	
0.2							
1.0							
10							
C251	1504496	3974518	4266106	2608846	2137849	15312955	.1441

PCB-1260	#1	#2	#3	#4	#5	TOTAL	Result
RT	26.209	26.520	28.101	28.430	30.047		
.1	151081	197613	126367	99901	207029	752021	
0.2							
1.0							
10							
C251	6150450	6579316	5610027	4405571	10166619	32907985	.0376

KCT 10/20/92

	Tetra		Penta	
Standards	RT 12.74		RT 30.39	
(µg/mL)	Area		Area	
.001	26053		11301	
.005	95437		63765	
.01	200693		152711	
.05	1090279		579492	
.1	2093228		1261191	
Blank	2519952	.0013	1715744	.0172
EL 4176	1933800	[illegible]	[illegible]	.0017
767	1712813	.0024	915128	.0112
78	1962372	.0093	979462	.0124
79	1721212	.0029	917613	.0174
80	1759483	.0044	917900	.0151
81	1704291	.0024	525130	.0601
82	1733930	.0015	763535	.0611
83	1546372	.0037	1097216	.0034
84	1378778	.0024	559050	.0048
85	1330001	.0011	719569	.0075
86	1801906	.0047	589199	.0069
87	1767965	.0051	561711	.0050
EL 4170	1557374		399460	

9613424.1815

Calculations

HARTCROWSER

Page 1 of 2

Job No. 2978-50

Project WHC 300-FF-5

Date 1/20/93

Calculations for Ical quant column Pest/PCB tissues

Made by AS

~~Lindane:~~ Mix A

Lindane	Calibration factor	Calibration factor Heptachlor	Calibration factor Endosulfan II
.001	17447000	17101000	16326000
.005	17579200	17130200	15076200
.01	19452000	17692300	14596400
.05	26015360	20169920	16340520
~~.01~~ .1	28155770	21377670	17360110
$\bar{X}$	21729866	49494218	$\bar{X}$ = 15939846
%RSD	23%	3.9%	~~%RSD = 6.9%~~

Heptachlor		Endosulfan I	pp DDT
.001	17717000	15941000	11014000
.005	18467600	15602000	9722800
.01	19682900	16210900	10315700
.05	21432920	18893120	12674040
.1	22483790	19963020	14671500
$\bar{X}$	19956842	17322008	$\bar{X}$ = 11679608
%RSD.	10%	11.4%	%RSD = 17.2%

Aldrin		Dieldrin	Endrin Ald.
.001	23881000	15123000	9010000
.005	18805400	13764200	12176200
.01	18939800	14651300	13332800
.05	23033720	17254780	12919820
.1	25000330	19188660	13577830
$\bar{X}$ =	21932050	$\bar{X}$ = ~~13518832~~ 15996388 ave	$\bar{X}$ = 12203330
%RSD =	13.1%	%RSD = ~~51.9%~~ 13.7%	%RSD = 15.3%

I. 2 min

.15 @ 22 min

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Calculations

HARTCROWSER

Page 2 of 2

Job No.

Project

Date

Calculations for

Made by

Mix B

Endosulfan ~~Lindane~~ 150ug	Calib. factor	Alpha-BHC	Isodrin
.001	12539000	26057000	17552000
.005	12992000	19862600	15789800
.01	12191800	20840500	17444600
.05	13867680	28293000	19452560
.10	14952740	30847190	20458350
$\bar{X}$	13308644	$\bar{X}$ = 25180058	$\bar{X}$ = 18139462
%RSD	8.4%	%RSD = 18.8%	%RSD = 10.1%
Methoxychlor		Beta-BHC	PPDDE
.001	31398000	13612000	14962000
.005	34585400	12249200	15320400
.01	35743600	13237100	17604100
.05	39186520	13324080	19829060
.10	43784160	13692740	21573580
$\bar{X}$	36939536	$\bar{X}$ = 13223024	$\bar{X}$ = 17857828
%RSD	12.8%	%RSD = 4.4%	%RSD = 16.0%
Endrin Ketone		Delta-BHC	Endrin
.001	10630000	21834000	10614000
.005	12281600	17421600	7740000
.01	12289800	19670100	9799900
.05	14067100	24962420	8429140
.1	15555230	27370690	9002870
$\bar{X}$	12964746	$\bar{X}$ = 22251762	$\bar{X}$ = 9117182
%RSD	14.6%	%RSD = 19.9%	%RSD = 12.4%
			PPDDD
			.001 11618000
			.005 10047400
			.01 10811700
			.05 12473140
			.1 13169900
			$\bar{X}$ = 11564028
			%RSD = 10.4%

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HOLDING TIME SUMMARY - FORM B-1

SDG: B07G67	REVIEWER: AS	DATE: 1/19/93	PAGE___OF___
COMMENTS:			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B07G67	Pest/PCB	Not provided Assume ~~9/24/92~~ 8/92	10/1/92	10/13/92		12	—
B07G68							
B07GB2							
B07GB3							
B07GC9							
B07GD0							
B07GD1							
B07GF8							
B07GG0							
B01855							
B07G50							
B07G51							

CALIBRATION DATA SUMMARY - FORM B-2

SDG: B87C67	REVIEWER: AS	DATE: 1/20/93		PAGE____OF____	
COMMENTS:					
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
10/12/92	Lindane		23%	—	—
	Dieldrin		51.9%	—	—
	All others Pesticide %RSD	acceptable			
	= 3.9% — 18.8%				
10/13/92	Heptachlor E		%D 62%		Calibrations exceeded
	PPDDT		%D = 44%		after analysis of
	All other pesticides = 3 - 21.6%				the samples.
	All DDT results are	> 12.0	minutes		
	PCB calibrations were	analyzed	4 days	before the	
	samples.				
	All confirmation column	compound results were	not	labeled.	

Recent column Ical

None of these compounds were detected. No data qualifiers are recommended

quant column. B-2 Cal

Confirm column

WHC-SD-EN-SPP-002, Rev. 1

9613424.1818

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 1567	REVIEWER: AS	DATE: 1/21/93	PAGE___OF___
COMMENTS:			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
Hexane 1	Hexane	ND						—	—
Blank 1	Not submitted								
Hexane 21	Hexane	ND						—	—
Hexane 27	Hexane	ND						—	—
Hexane 30	Hexane	ND						—	—

9613424.1819

ACCURACY DATA SUMMARY - FORM B-4

SDG: B07667	REVIEWER: AS	DATE: 1/21/93	PAGE____OF____	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
All Surrogates	30 – 92 % For	TCMX & DCB.		
☆ No MS/MSD was performed due		to insufficient sample		/dc
				No data qual. required.
PCB-1016	LCS	69%	—	—
PCB-1260		88 %	—	—

9613424.1820

PRECISION DATA SUMMARY - FORM B-5

SDG:	REVIEWER	DATE:	PAGE___OF___
COMMENTS:			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER

NA

CALCULATION SUMMARY - FORM B-6

SDG: B07G67	REVIEWER: AS	DATE: 1/22/93	PAGE___OF___

COMMENTS:

B07G67 = $\frac{172014(1\,ug)(10000\,ml)}{17857828(1)(18.72)}$ = 5.21 ug/kg

17604100

= .00521 ug/g

B07G68 = $\frac{99549(10000)}{17604100(1)(17.02)}$ = 3.32 ug/kg

= .00332 ug/g

B07GC9 = $\frac{37636(10000)}{17604100(19.58)}$ = 1.091 ug/kg

= .00109 ug/kg

B07GD0 = $\frac{36567(10000)}{17604100(17.35)}$ ~~1.972~~ 1.197 ug/kg = .00197 ug/g

B07GD1 = $\frac{31736(10000)}{17604100(17.22)}$ = 1.0469 ug/kg = .00104 ug/g

*. All detected results are within the retention time window criteria.

No PCBs detected.

9613424.1823

Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Date 1/21/93

Made by AS

Project WHC

Calculations for CK A & B Pest/PCB

Compd.	Ical $\bar{x}$	Ccal	% D
Lindane	21729866	24088460	~~10%~~ 10.1%
Heptachlor	19956842	20978760	5.1%
Aldrin	21932050	20435120	6.8%
Heptachlor E.	4949 4218	18769340	62%
Endosulfan I	17322008	16055860	7.3%
Dieldrin	13518832	15752820	16.5%
Endosulfan II	15939846	12494780	21.6%
PP DDT	11679608	6534960	44.0%
Endrin Ald.	12203330	16128640	17.0%
Endosulfan SO4	13308644	9477240	28.8%
Methoxychlor	43784460	41432080	4.5%
Endrin ketone	12864746	9155260	29.4%
Alpha-BHC	25180058	27210120	8.0%
Beta-BHC	13223024	12540520	5.1%
Delta-BHC	22251762	22914760	3.0%
Isodrin	18139462	17797120	18.9%
PPDDE	17857828	16103740	9.8%
PPDDD	11564028	9120480	21.1%
Endrin	9117182	10341720	13.4%

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09-079

PO_4
TSS/TDS

Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Project WHC

Date 1/21/93

Calculations for Surrogate %R TCMX & DBC

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		DBC	TCMX	%R DBC	%R TCMX
B06	B07G67	~~.069~~ .034	~~.061~~ .046	68%	92%
	B07G68	~~.034~~ .037	.041	74%	82%
	B07GB2	~~.037~~ .039	.045	78%	90%
	B07GB3	~~.039~~ .033	.041	66%	82%
	B07GC9	~~.033~~ .033	.042	66%	84%
	B07GD0	~~.033~~ .032	.043	64%	86%
	B07GD1	~~.032~~ .031	.042	62%	84%
	B07GF8	~~.031~~ .024	.045	48%	90%
	B07GG0	~~.024~~ .022	.045	44%	90%
	B01855	~~.022~~ .029	.044	58%	88%
	B07G50	~~.029~~ .015	.043	30%	86%
	B07G51	.023	.043	46%	86%

EW-047

9299-L9
09-047

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Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Date 1/22/93

Made by AS

Project LWHC

Calculations for RT Check

	Detected compound	RT Sample	RT Std	ok ✓
4176	PRDDE	24.825	24.82	✓
4177		24.816		✓
4180		24.806		✓
4181		24.803		✓
4182		24.805		✓
4185		24.812		✓

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Calculations

HARTCROWSER

Page ____ of ____

Job No. 2978-50

Project WHC

Date 1/29/93

Calculations for % Breakdown 4,4-DDT + Endrin

Made by AS

Mix A % Breakdown DDT = $\frac{\overset{DDE}{4113} + \overset{DDD}{14052}}{\underset{DDT}{633702} + \underset{DDD}{14052} + \underset{DDE}{4113}}$ = 2.8 % ✓

Mix B % Breakdow ~~DDE~~ Endrin = $\frac{\cancel{645991 + 703355}}{\cancel{4615} + 645991 + 703355}$ =

$\frac{\overset{endrin A}{126446} + \overset{endrin K}{106883}}{\underset{endrin}{421457} + \underset{endrin A}{126446} + \underset{endrin K}{106883}}$ = 35.6 %

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