



HEARTLAND ENVIRONMENTAL SERVICES, INC.

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October 24, 1991

To: John Williams
Roy F. Weston, Inc.
One Weston Way
Lionville, PA

From: Paul B Humburg
Project Manager
Heartland ESI

Subject: Submittal of Analytical Data Validation of the Pesticide/PCB analytical results of sampling conducted at the Naval Weapons Station/Earle, Colts Neck, NJ on August 20, 1991. There was one (1) water sample and seven (7) sediment samples with one soil MS/MSD which were analyzed by the Roy F. Weston - Lionville Laboratory included in this analytical batch, RFW Lot #9108L518.

Samples Reviewed Water Samples

<u>Field ID</u>	<u>Lab ID</u>
08-T007-W201	9108L518-008

Soil Samples

<u>Field ID</u>	<u>Lab ID</u>	<u>Field ID</u>	<u>Lab ID</u>
08-T001-S001	9108L518-001	08-T006-S001	9108L518-006
08-T002-S001	9108L518-002	08-T006-S001MS	9108L518-006MS
08-T004-S001	9108L518-003	08-T006-S001MSD	9108L518-006MSD
08-T004-S101	9108L518-004	08-T007-S001	9108L518-007
08-T005-S001	9108L518-005		

Heartland ESI has reviewed the data from the samples listed above for the Pesticide/PCB Target Compound List (TCL) based upon analytical and quality assurance requirements specified in the EPA CLP Statement of Work (SOW) 2/88 and 9/88 revisions, using the EPA Region II Standard Operating Procedure (SOP) HW-6, Revision 7, 3/90. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of the U.S. EPA CLP and Region II. This screening assumes that the analytical results are correct as reported and merely provides an interpretation of the reported quality control results.

Individual analytical fractions were reviewed as follows:

- * Pesticide/PCB by Christopher D. Scarpellino with secondary review by Eugene M. Watson

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**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

In general, the laboratory performance was poor. The chromatography was generally of poor quality. All analyses were performed on packed columns utilizing peak heights for compound quantitation.

Five-fold dilutions of samples 08-T001-S001, 08-T004-S001, and 08-T004-S101 were made because of "high levels of non-target compounds", as reported in the Case Narrative, p. 6B. The necessity of these dilutions are not substantiated by review of the sample chromatograms supplied. These dilutions were apparently unnecessary and resulted in the reporting of elevated CRQLs for these samples which may be of reduced value to the end-user.

Significant electropositive baseline displacements (negative deflections or peaks) were observed in chromatograms from the primary analyses of most of the soil samples. This reviewer believes that the actual CRQLs are likely to be higher than the reported CRQLs for single component pesticides with peaks occurring within the retention time interval of these negative deflections.

Specific Finding

1. Due to significant negative baseline deflections, the reported non-detect results for Endosulfan II are qualified as estimated in samples 08-T004-S001, 08-T004-S101, 08-T005-S001, 08-T006-S001 and 08-T007-S001.

Holding Times

All samples were extracted and analyzed within holding times.

GC Instrument Performance

The peak for Endrin ketone resulting from the analyses of the INDB 27-56 standard 9/13/91 at 21:06 on the primary, 2250/2401 column was outside the laboratory provided retention time window (RTW). All associated sample chromatograms were carefully reviewed with a slightly expanded RTW. No peaks near the RTW were identified.



GC Instrument Performance (continued)

All percent breakdowns were less than 20%. The DBC retention time differences (%Ds) were within QC limits for all standards, samples and blanks.

Initial Calibration

The %RSD for Aldrin and 4,4'-DDT in the initial calibration of both the confirmation sequences associated with this batch exceeded the QC limit. The laboratory reported results for two samples which were quantified from one of these non-linear confirmation column analyses. These reported results are rejected in favor of reviewer quantitations determined from the primary analysis as specified in the Identification/Quantitation section of this report, following.

Continuing Calibrations

No qualification of the reported results were required based on the reported continuing calibrations.

Blanks

No target compounds were confirmed in either the water method blank or the reported soil method blank. Non-target contaminant peaks were identified in the primary analyses at retention times of approximately 2.4 and 4.0 for the water blank and 3.0 and 4.0 for the soil blank.

Surrogate Recoveries

All DBC surrogate recoveries were within the required QC limits.

Matrix Spike/Matrix Spike Duplicate

No qualifications were required based on the Recoveries or RPDs reported for the soil MS/MSD, or the reported water BS/BSD. However, gamma-BHC was arbitrarily quantitated by the laboratory from the confirmation analyses of the MS and MSD. These quantitations make the associated Form 9s incorrect for the Y/N designations for quantitation. The confirmation results were apparently selected by the laboratory because of the higher recoveries obtained. These reported results are rejected in favor of the concentrations and recoveries obtained from the primary analysis, which are still within QC limits.

Quantitative results for gamma-BHC from the primary analysis:

MS - 14.6 ug/Kg - 50% Recovery
MSD - 15.2 ug/Kg - 52% Recovery

Similarly, the laboratory reported results for gamma-BHC and Aldrin



Matrix Spike/Matrix Spike Duplicate (continued)

in the soil Blank Spike determined from the non-linear confirmation analysis. These reported results are also rejected in favor of the concentrations and recoveries obtained from the primary analysis, which are still within the CLP QC limits. It must be noted that the NEESA QA protocol requires the laboratory to track its performance on Blank Spike and Duplicate results (intra-lab) and to set its own internal limits on Recoveries and RPDs rather than use the extremely wide CLP limits (inter-lab).

Quantitative results for the soil Blank Spike determined from the primary analysis:

gamma-BHC - 16.7 ug/Kg - 62% Recovery
Aldrin - 18.0 ug/Kg - 67% Recovery

The laboratory is very strongly urged not to misrepresent or unduly bias required QC results and/or to provide a full and accurate description of what was done and why in the Case Narrative.

Analyte Identification/Quantitation

Specific Finding

2. The laboratory incorrectly calculated the reported results for 4,4'-DDD in samples 08-T004-S001 and 08-T004-S101. The laboratory failed to account for the five-fold dilution performed on these samples and described in the Case Narrative. Regardless of this calculation error, the laboratory quantified the reported DDD results from the confirmation column which was demonstrated to be non-linear in the initial calibration. The reviewer calculated quantitative results for DDD in these samples of 132 ug/Kg and 150 ug/Kg. However, because of the significant negative baseline deflection near the observed peaks, the reviewer chooses to qualify the results as estimated.

Overall Assessment

The overall quality of the data was poor, although it was packaged well. The reported results for the samples are qualified as described in this validation report.



QUALIFICATION CODES

- U = Not detected
 - J = Estimated value
 - UJ = Reported quantitation limit is qualified as estimated
 - R = Result is rejected and unusable
 - N = Result is negated, do not consider result in sample
 - NJ = Presumptive evidence for the presence of the material at an estimated value
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Heartland ESI specific findings are footnoted numerically on the Form Is in this data validation report. These specific finding footnotes refer to findings listed in the Data Assessment Narrative which describe the reasons for qualifications applied to the data.



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
08-T004-S001, 08-T004-S101, 08-T005-S001, 08-T006-S001 and 08-T007-S001	Endosulfan II	U	UJ	1
08-T004-S001 and 08-T004-S101	4,4'-DDD	+	+J	2

- * DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
- in the DL column denotes a negative result
QL denotes the qualifier/value used by Heartland ESI

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PESTICIDE ORGANICS ANALYSIS SHEET

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CLIENT SAMPLE NO.

08-T001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-001

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 09139103.39

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 10 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/13/91

GPC Cleanup: (Y/N) Y pH: 4.5 Dilution Factor: 5.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

319-84-6	Alpha-BHC	44	U
319-85-7	Beta-BHC	44	U
319-86-8	Delta-BHC	44	U
58-89-9	gamma-BHC (Lindane)	44	U
76-44-8	Heptachlor	44	U
309-00-2	Aldrin	44	U
1024-57-3	Heptachlor epoxide	44	U
959-98-8	Endosulfan I	44	U
60-57-1	Dieldrin	88	U
72-55-9	4,4'-DDE	88	U
72-20-8	Endrin	88	U
33213-65-9	Endosulfan II	88	U
72-54-8	4,4'-DDD	88	U
1031-07-8	Endosulfan sulfate	88	U
50-29-3	4,4'-DDT	88	U
72-43-5	Methoxychlor	440	U
53494-70-5	Endrin ketone	88	U
5103-71-9	alpha-Chlordane	440	U
5103-74-2	gamma-Chlordane	440	U
8001-35-2	Toxaphene	880	U
12674-11-2	Aroclor-1016	440	U
11104-28-2	Aroclor-1221	440	U
11141-16-5	Aroclor-1232	440	U
53469-21-9	Aroclor-1242	440	U
12672-29-6	Aroclor-1248	440	U
11097-69-1	Aroclor-1254	880	U
11096-82-5	Aroclor-1260	880	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

08-T002-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 09139103.42

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 9 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/14/91

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg

319-84-6	Alpha-BHC	2.9	J
319-85-7	Beta-BHC	8.8	U
319-86-8	Delta-BHC	8.8	U
58-89-9	gamma-BHC (Lindane)	8.8	U
76-44-8	Heptachlor	8.8	U
309-00-2	Aldrin	8.8	U
1024-57-3	Heptachlor epoxide	8.8	U
959-98-8	Endosulfan I	8.8	U
60-57-1	Dieldrin	18	U
72-55-9	4,4'-DDE	18	U
72-20-8	Endrin	18	U
33213-65-9	Endosulfan II	18	U
72-54-8	4,4'-DDD	18	U
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	88	U
53494-70-5	Endrin ketone	18	U
5103-71-9	alpha-Chlordane	88	U
5103-74-2	gamma-Chlordane	88	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	88	U
11104-28-2	Aroclor-1221	88	U
11141-16-5	Aroclor-1232	88	U
53469-21-9	Aroclor-1242	88	U
12672-29-6	Aroclor-1248	88	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	180	U

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PESTICIDE ORGANICS ANALYSIS SHEET

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CLIENT SAMPLE NO.

08-T004-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-003

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 09139103.43

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 10 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/14/91

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 5.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	44	U
319-85-7	Beta-BHC	44	U
319-86-8	Delta-BHC	44	U
58-89-9	gamma-BHC (Lindane)	44	U
76-44-8	Heptachlor	44	U
309-00-2	Aldrin	44	U
1024-57-3	Heptachlor epoxide	44	U
959-98-8	Endosulfan I	44	U
60-57-1	Dieldrin	88	U
72-55-9	4,4'-DDE	88	U
72-20-8	Endrin	88	U
33213-65-9	Endosulfan II	88	U
72-54-8	4,4'-DDD	11 130	J
1031-07-8	Endosulfan sulfate	88	U
50-29-3	4,4'-DDT	88	U
72-43-5	Methoxychlor	440	U
53494-70-5	Endrin ketone	88	U
5103-71-9	alpha-Chlordane	440	U
5103-74-2	gamma-Chlordane	440	U
8001-35-2	Toxaphene	880	U
12674-11-2	Aroclor-1016	440	U
11104-28-2	Aroclor-1221	440	U
11141-16-5	Aroclor-1232	440	U
53469-21-9	Aroclor-1242	440	U
12672-29-6	Aroclor-1248	440	U
11097-69-1	Aroclor-1254	880	U
11096-82-5	Aroclor-1260	880	U

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PESTICIDE ORGANICS ANALYSIS SHEET

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CLIENT SAMPLE NO.

08-T004-S101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-004

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 09139103.44

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 14 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/14/91

GPC Cleanup: (Y/N) Y pH: 5.4 Dilution Factor: 5.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg

319-84-6	Alpha-BHC	45	U
319-85-7	Beta-BHC	45	U
319-86-8	Delta-BHC	45	U
58-89-9	gamma-BHC (Lindane)	45	U
76-44-8	Heptachlor	45	U
309-00-2	Aldrin	45	U
1024-57-3	Heptachlor epoxide	45	U
959-98-8	Endosulfan I	45	U
60-57-1	Dieldrin	91	U
72-55-9	4,4'-DDE	91	U
72-20-8	Endrin	91	U
33213-65-9	Endosulfan II	91	U
72-54-8	4,4'-DDD	15 150	J
1031-07-8	Endosulfan sulfate	91	U
50-29-3	4,4'-DDT	91	U
72-43-5	Methoxychlor	450	U
53494-70-5	Endrin ketone	91	U
5103-71-9	alpha-Chlordane	450	U
5103-74-2	gamma-Chlordane	450	U
8001-35-2	Toxaphene	910	U
12674-11-2	Aroclor-1016	450	U
11104-28-2	Aroclor-1221	450	U
11141-16-5	Aroclor-1232	450	U
53469-21-9	Aroclor-1242	450	U
12672-29-6	Aroclor-1248	450	U
11097-69-1	Aroclor-1254	910	U
11096-82-5	Aroclor-1260	910	U

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PESTICIDE ORGANICS ANALYSIS SHEET

0000035

CLIENT SAMPLE NO.

08-T005-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-005

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 09139103.45

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 11 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/14/91

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

319-84-6	Alpha-BHC	8.9	U
319-85-7	Beta-BHC	8.9	U
319-86-8	Delta-BHC	8.9	U
58-89-9	gamma-BHC (Lindane)	8.9	U
76-44-8	Heptachlor	8.9	U
309-00-2	Aldrin	8.9	U
1024-57-3	Heptachlor epoxide	8.9	U
959-98-8	Endosulfan I	8.9	U
60-57-1	Dieldrin	18	U
72-55-9	4,4'-DDE	18	U
72-20-8	Endrin	18	U
33213-65-9	Endosulfan II	18	U
72-54-8	4,4'-DDD	18	U
1031-07-8	Endosulfan sulfate	18	U
50-29-3	4,4'-DDT	18	U
72-43-5	Methoxychlor	89	U
53494-70-5	Endrin ketone	18	U
5103-71-9	alpha-Chlordane	89	U
5103-74-2	gamma-Chlordane	89	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	89	U
11104-28-2	Aroclor-1221	89	U
11141-16-5	Aroclor-1232	89	U
53469-21-9	Aroclor-1242	89	U
12672-29-6	Aroclor-1248	89	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	180	U

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PESTICIDE ORGANICS ANALYSIS SHEET

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CLIENT SAMPLE NO.

08-T006-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-006

Sample wt/vol: 30.9 (g/mL) G Lab File ID: 09139103.46

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 10 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/14/91

GPC Cleanup: (Y/N) Y pH: 5.2 Dilution Factor: 1.00

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/Kg

319-84-6	Alpha-BHC	8.7	U
319-85-7	Beta-BHC	8.7	U
319-86-8	Delta-BHC	8.7	U
58-89-9	gamma-BHC (Lindane)	8.7	U
76-44-8	Heptachlor	8.7	U
309-00-2	Aldrin	8.7	U
1024-57-3	Heptachlor epoxide	8.7	U
959-98-8	Endosulfan I	8.7	U
60-57-1	Dieldrin	17	U
72-55-9	4,4'-DDE	17	U
72-20-8	Endrin	17	U
33213-65-9	Endosulfan II	17	U
72-54-8	4,4'-DDD	17	U
1031-07-8	Endosulfan sulfate	17	U
50-29-3	4,4'-DDT	17	U
72-43-5	Methoxychlor	87	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	87	U
5103-74-2	gamma-Chlordane	87	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	87	U
11104-28-2	Aroclor-1221	87	U
11141-16-5	Aroclor-1232	87	U
53469-21-9	Aroclor-1242	87	U
12672-29-6	Aroclor-1248	87	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

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PESTICIDE ORGANICS ANALYSIS SHEET

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CLIENT SAMPLE NO.

08-T007-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9108L518-007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 09139103.49

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. 8 dec. Date Extracted: 08/29/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/14/91

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
319-84-6	Alpha-BHC	8.7	U
319-85-7	Beta-BHC	8.7	U
319-86-8	Delta-BHC	8.7	U
58-89-9	gamma-BHC (Lindane)	8.7	U
76-44-8	Heptachlor	8.7	U
309-00-2	Aldrin	8.7	U
1024-57-3	Heptachlor epoxide	8.7	U
959-98-8	Endosulfan I	8.7	U
60-57-1	Dieldrin	17	U
72-55-9	4,4'-DDE	17	U
72-20-8	Endrin	17	U
33213-65-9	Endosulfan II	17	U
72-54-8	4,4'-DDD	17	U
1031-07-8	Endosulfan sulfate	17	U
50-29-3	4,4'-DDT	17	U
72-43-5	Methoxychlor	87	U
53494-70-5	Endrin ketone	17	U
5103-71-9	alpha-Chlordane	87	U
5103-74-2	gamma-Chlordane	87	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	87	U
11104-28-2	Aroclor-1221	87	U
11141-16-5	Aroclor-1232	87	U
53469-21-9	Aroclor-1242	87	U
12672-29-6	Aroclor-1248	87	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

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PESTICIDE ORGANICS ANALYSIS SHEET

0000050

CLIENT SAMPLE NO.

08-T007-W201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9108L518-008

Sample wt/vol: 980 (g/mL) ML Lab File ID: 09109103.59

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. dec. Date Extracted: 08/22/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 09/11/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

319-84-6	Alpha-BHC	0.051	U
319-85-7	Beta-BHC	0.051	U
319-86-8	Delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.51	U
5103-74-2	gamma-Chlordane	0.51	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.51	U
11104-28-2	Aroclor-1221	0.51	U
11141-16-5	Aroclor-1232	0.51	U
53469-21-9	Aroclor-1242	0.51	U
12672-29-6	Aroclor-1248	0.51	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

Handwritten: 9-18-91

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW Lot # 7108L518

LAB: Roy F. Weston - Lionville

SITE: Naval Weapons Station / Earle
Colts Neck, NJ

1.0 Data Completeness and Deliverables

YES NO N/A

1.1 Have any missing deliverables been received and added to the data package.

ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.

1.2 Was SMD CCS checklist included with package?

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

2.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?

3.0 Data Validation Checklist

The following checklist is divided into three parts. Part A is filled out if the data package contains any VOA analyses, Part B for any BVA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?

BVA data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

PART C: PESTICIDE/PCB ANALYSES

YES NO N/A

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

ACTION: Use professional judgement to evaluate the effect on the quality of the data.

ACTION: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).

2.0 Holding Times

2.1 Have any PEST/PCB holding times, determined from date of collection to date of extraction, been exceeded?

Samples for PEST/PCB analysis, both soils and waters, must be extracted within seven days of the date of collection. Extracts must be analyzed within 40 days of the date of extraction.

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water

b. Med Water

c. Low Soil

d. Med Soil

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water

b. Med Water

c. Low Soil

d. Med Soil

00016

ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

3.3 Were outliers marked correctly with an asterisk?

YES	NO	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ACTION: Circle all outliers in red. None

3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J". If recovery is zero, flag positive results "J" and non-detects "R". If recovery for the blank is zero, flag non-detects for all associated samples "R". If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewers professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

3.5 Are there any transcription/calculation errors between raw data and Form II?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

- a. Low Water *Assume low water sample is a field blank, no MS/MSD*
- b. Med Water *BS/BSD performed & reported*
- c. Low Soil
- d. Med Soil

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

<u>Water</u>	<u>Soils</u>
<u>0</u> out of 12 (BS/BSD)	<u>0</u> out of 12

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits? YES NO N/A

Water Soils

0 out of 6 0 out of 6
 (BS/BSD)

ACTION: If MS and MSD both have less than zero recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for MS/MSD analysis. Use professional judgement in applying this criterion to other samples.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

5.2 Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, med water, low soil, medium soil), whichever is more frequent?

5.3 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

ACTION: Use professional judgement to determine the effect on the data.

Some significant negative deflections of baseline in particular samples - assessed case-by-case

6.0 Contamination

NOTE: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

Soil Method Blank contains positive hit for B-BHC, well below CRQL - no hits in samples. No impact

6.2 Do any field/rinse blanks have positive PEST/PCB results?

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

NOTE: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; cross out "B" flag	No qualification is needed

6.3 Are there field/rinse/equipment blanks associated with every sample?

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) column present:

- a. Evaluation Standard Mix A
- b. Evaluation Standard Mix B
- c. Evaluation Standard Mix C
- d. Individual Standard Mix A
- e. Individual Standard Mix B
- f. Multi-component Pesticides Toxaphene & ^{NR}Chlordane
- g. Aroclors 1016/1260
- h. Aroclors 1221, 1232, 1242, 1248, and 1254

ACTION: If no, take action specified in 3.2 above

	YES	NO	N/A
7.2 Is Form VIII Pest-1 present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?	(✓)	—	—

ACTION: If no, take action specified in 3.2 above.

7.3 Are there any transcription/calculation errors between raw data and Form VIII?	—	(✓)	—
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".
Cont'd columns non-linear for Aldrin + DDT

7.4 Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?	—	(✓)	—
--	---	-----	---

- for Endrin?

—	(✓)	—
---	-----	---

or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?

—	(✓)	—
---	-----	---

ACTION:

a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:

1. Flag all positive DDT results "J".
2. If DDT was not detected but DDD and/or DDE are positive, flag the DDT non-detect "R".
3. Flag positive DDD and DDE results "JN".
4. If DDT breakdown is > 20% on confirmation column and DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DDT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is > 20% on quantitation column, beginning with the samples following the last in control standard:

1. Flag all positive Endrin results "J".
2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R".
3. Flag Endrin Ketone positive results "JN".
4. If Endrin breakdown is > 20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used (it can only be used if the conditions in 7.4 above are met) and is > 20% on quantitation column beginning with the last in control standard, take the actions specified in 7.4 a and b above. If the combined breakdown is > 20% on confirmation column and Endrin or DDT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DDT should be reported on Form I (if reported, flag result "N").

	YES	NO	N/A
7.5 Is the linearity check RSD of all four calibration factors <10% for the quantitation column?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DOT if they are quantified from a 3-point calibration curve.

7.6 Is the % difference between the EVAL A and each analysis (quantitation and confirmation) DBC retention time within QC limits (2% for packed column, 0.3% for capillary (I.D. < 0.32 mm), 1% for megabore (0.32 < I.D. < 2 mm)) ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgement to determine the reliability of the analysis and flag results "R", if appropriate. *Packed Columns*

7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

3.0 Pesticide/PCB Standards Summary

8.1 Is Form IX present and complete for each GC column and 72 hr sequence of analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: If no, take action specified in 3.2 above.

8.2 Are there any transcription/calculation errors between raw data and Form IX?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

8.3 Is DOT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

8.4 Do all standard retention times fall within the windows established for the first IND A and IND B analyses?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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YES NO N/A

ACTION: Beginning with the samples following the last in control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and, DBC is visible non-detects are valid. If peaks are present and cannot be identified through "pattern recognition" or a consistent shift in standard retention times, flag all affected compound results "R".

Endrin Ketone INDB 26-56
9/12/91 04:35 2250/2401
— no impact

Endrin ketone INDB 27-56
9/13/91 21:06 2250/2401
-late peak @ 22:16
coelutes with DBC?

8.5 Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hr sequence) calibration factors?

ACTION: If no, flag all associated positive results "J". Use professional judgement to determine whether or not to flag non-detects.

No samples associate with stds. in 1st set of sequences
Closing stds. only in 2nd set of sequences — no impact

9.0 Pesticide/PCB Identification

9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

ACTION: If no, take action specified in 3.2 above.

9.2 Are there any transcription errors between raw data and Form X?

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

9.3 Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?

ACTION: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e. base on RRT to DBC).

9.4 Check chromatograms for false negatives, especially for the multiple peak components toxaphene and PCB's. Were there any false negatives?

ACTION: If appropriate PCB standards were not analyzed, or if the lab performed no confirmation analysis, flag the appropriate data with an "R".

Consistent peak pattern early but not a target PCB

10.0 Compound Quantitation and Reported Detection Limits

YES NO N/A

10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Were any errors found?

— —

NOTE: Simple peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgement to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an estimated quantity ("JN"). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has obscured the attempt at a second column confirmation.

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

—

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

CRQLs adjusted but hits apparently not calculated to include dilutions

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

11.0 Chromatogram Quality

11.1 Were baselines stable?

—

11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?

—

11.3 Were early eluting peaks (for early eluting analytes) resolved to baseline?

— —

ACTION: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

12.0 Field Duplicates

YES NO N/A

12.1 Were any field duplicates submitted for PEST/PCB analysis?

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

(?)

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

08-T004-5001

DDD 11 µg/kg (J)

08-T004-5101

DDD 13 µg/kg (J)

RPD = 17%

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 91082518 SDG No. 5001 LABORATORY R.F. Weston SITE NWS/Earle
Lieenville Coits Neck, NJ

DATA ASSESSMENT:

The current functional guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable), or "NJ" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Reviewer's
Signature: [Signature] Date: 10/22/19 91

Verified By: [Signature] Date: 11/4/19 91

DATA ASSESSMENT:

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples will be qualified as estimated, "J". The non-detects sample quantitation limits will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

*All samples were extracted and analyzed
within the required holding times.*

No action.

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Water blanks measure potential contamination of the distilled water used during decontamination of field equipment. If the concentration of the analyte is less than 5 times (10 times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

- A) Method blank contamination *No target compounds were identified in either the Soil or Water Method Blanks.*
- *Soil Blank contained contaminant peaks on 1st column @ RT = 3.0 & 4.0*
 - *Water Blank contained contaminant peaks on 1st column @ RT = 2.4 & 4.0*
- Peak @ 4.0 appears to be a common lab contaminant at fairly high, though variable, concentration*
- B) Field or rinse blank contamination
- 08-T007-W201 appears to be a field blank*
- No target compounds were identified in this sample.*
- C) Water blank contamination
- NA*
- D) Trip blank contamination
- NA*

DATA ASSESSMENT:

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If there is a gross deviation of %RSD and %D, the non-detects may be qualified as rejected, "R".

For the PCB/PESTICIDE fraction, %RSD for aldrin, endrin, DDT, and dibutylchloroendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

*The %RSD for Aldrin and DDT exceeded 10% in the initial calibrations of the confirmation column, SP2100, for both the "water" (9/10-12/91) and "soil" (9/13-14/91) sequences. * reportedly -
No positive sample results were quantitated from these columns. However, the soil Blank Spike ^{MS/MSD} had gamma-BHC arbitrarily quanted from the confirmation column, presumably because of the higher recoveries obtained.
(* DDD quanted from conf.)*

In the "soil" sequence, Endrin ketone was outside the RTW in INDB 27-56 9/13/91 21:06 on the primary column. All sample chromatograms were carefully reviewed and no peaks near the RTW were identified. Closing standards had %Ds > 15 + 20% for 10 + Conf, respectively. No impact on the associated sample data was identified.

DATA ASSESSMENT:

6. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation in order to evaluate the laboratory performance and to estimate the efficiency of the analytical technique. If the measured surrogate concentration is outside of the contract specifications, qualifications were applied to the samples and analytes as shown below.

All surrogate recoveries were within the advisory QC limits. No qualifications required.

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

TCL compounds are identified on the GC/MS by using the analytes relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary M/E lines within 20% of that in the standard compound. For the tentatively identified compounds, TIC, the ion spectra must match accurately. In the cases where there is not a perfect ion spectrum match, the laboratory may have provided false positive identifications.

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/uL in the final sample extract.

The retention times of the peaks associated with the positive results reported, for alpha-BHC in sample 08-T002-5001 and for DDD in samples 08-T004-5001 and 08-T004-5101, were within the laboratory established RTWs.

*However, the Form 10s for the DDD results reported are incorrect in that they indicated quantitation for this compound was performed from the primary column. Quantitation was actually performed from the confirmation column due to the "negative deflection" in the chromatograph baseline observed in the primary column - see raw data pages 29 & 35 -
Extremely poor chromatography!*

Reported concentrations did not require GC/MS confirmation.

00030

DATA ASSESSMENT:

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data.

All the reported MS/MSD recoveries and RPDs were within QC limits. However, the reviewer takes exception with the quantitation of gamma-BHC in the soil MS/MSD and the quantitation of gamma-BHC and Aldrin in the soil Blank Spike sample. All of these compounds in these QC samples were arbitrarily quantified from the confirmation column which was demonstrated to be non-linear for two of the four initial calibration compounds. These quantitations make the reported Form 9s incorrect for the Y/N designations for quantitation. These recovery results are rejected in favor of the lower recovery results determined from the primary column. The laboratory is very strongly urged not to misrepresent or unduly bias QC results.

Quantitation from 1^o column

MS gamma-BHC = 14.6 µg/kg = 50% Recovery
MSD gamma-BHC = 15.2 µg/kg = 52% Recovery

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

The reported concentrations and recoveries for the soil Blank Spike for gamma-BHC and Aldrin were incorrectly reported from the confirmation column.

*From 10: gamma-BHC = 16.7 µg/kg = 62% Recovery
 Aldrin = 18.0 µg/kg = 67% Recovery*

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

*Poor chromatography - especially
primary column with significant
baseline instabilities*

12. CONTRACT PROBLEMS NON-COMPLIANCE:

It is doubtful that in samples with a large negative deflection in the baseline in the 10.8 - 12.2 RT interval, eg. 08-T004-5001, 08-T004-5101, 08-T005-5001, 08-T006-5001, and 08-T007-5001, concentrations of Endosulfan II near the reported CRQL could be detected.

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

Only 1 Form I per sample reported.

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Poor.

✓ The dilutions of samples 08-T001-S001, 08-T004-S001 and 08-T004-S101 reportedly made because of "high levels of non-target compounds" (Case Narrative, p. 6B) do not appear to have been necessary from the sample chromatograms supplied. The dilutions resulted in the reporting of DDD by the lab at concentrations below the resulting CRQL in samples 08-T001-S001 & 08-T004-S101. In addition, the confirmed DDE results in each of these samples were too low to be reported by the lab at these dilutions.

✓ The laboratory chose to ^{arbitrarily} quantitate the reported DDD results in these two samples from the continuation column due to the negative deflection in the baseline of the primary column. The reported Form 10s for these samples are incorrect and no mention of this deviation was made in the Case Narrative. The concentrations of DDD determined from the primary column are: 132 µg/kg and 150 µg/kg.

✓ In Addition, The lab failed to take into account the factor of 5 dilution in the reported DDD results.

Strike 3

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 91081518

LABORATORY R.F. Weston - Lionville

SDG NO. 08-T001-5001

DATA USER _____

SOW: CLP 2/88

REVIEW COMPLETION DATE 10/24/91

NO. OF SAMPLES 1 WATER 7 SOIL _____ OTHER _____

REVIEWER ESD ESAT OTHER, CONTRACT/CONTRACTOR Heartland ESI

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	_____	<u>0</u>	_____
2. GC-MS TUNE/ GC PERFORMANCE	_____	_____	<u>X</u>	_____
3. INITIAL CALIBRATIONS	_____	_____	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	_____	_____	<u>0</u>	_____
5. FIELD BLANKS ('F' = not applicable)	_____	_____	<u>0</u>	_____
6. LABORATORY BLANKS	_____	_____	<u>0</u>	_____
7. SURROGATES	_____	_____	<u>0</u>	_____
8. MATRIX SPIKE/DUPPLICATES	_____	_____	<u>0</u>	_____
9. REGIONAL QC ('F' = not applicable)	_____	_____	<u>F</u>	_____
10. INTERNAL STANDARDS	_____	_____	_____	_____
11. COMPOUND IDENTIFICATION	_____	_____	<u>0</u>	_____
12. COMPOUND QUANTITATION	_____	_____	<u>X</u>	_____
13. SYSTEM PERFORMANCE	_____	_____	<u>X</u>	_____
14. OVERALL ASSESSMENT	_____	_____	<u>X</u>	_____

- O = No problems or minor problems that do not affect data usability.
- X = No more than about 5% of the data points are qualified as either estimated or unusable.
- M = More than about 5% of the data points are qualified as estimated.
- Z = More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: _____

AREAS OF CONCERN: Apparent bias in quantitation of
required QC

REJECTS SUMMARY TABLE
(No. of Compounds/No. of Fractions (Samples))

SOP NO: HW-6
Date: February 1989

Type of Review: Region II-CLP 2/88 Date: 10/22/91 Case #: 91082518
 Project: Naval Weapons Station/Earle Colts Neck, NJ Lab Name: Roy F. Weston - Lionville
 Reviewer's Initials: CDS [Signature] Number of Samples: 7 soil + 1 water

50000

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
H/N (50)								
VDA (35)								
PEST (20)	∅	∅	∅	∅	∅	∅	8	∅/160
IXD (7)	∅	∅	∅	∅	∅	∅	8	∅/56
IXD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VDA (35)								
PEST (20)	∅	∅	∅	∅	∅	7	8	7/160
IXD (7)	∅	∅	∅	∅	∅	∅	8	∅/56
IXD (1)								

00035



HEARTLAND ENVIRONMENTAL SERVICES, INC.

P.O. BOX 163 ST. PETERS MO 63376

(314) 278-8232

October 31, 1991

To: John Williams
Roy F. Weston, Inc.
One Weston Way
Lionville, PA

From: Paul B Humburg
Project Manager
Heartland ESI

Subject: Submittal of Analytical Data Validation of the Pesticide/PCB analytical results of sampling conducted at the Naval Weapons Station/Earle, Colts Neck, NJ on August 20, 1991. There was one (1) TCLP water sample which was prepared from a soil sample with an MS which were analyzed by the Roy F. Weston - Lionville Laboratory included in this analytical batch, RFW Lot #9108L518.

Samples Reviewed Water Sample (TCLP)

<u>Field ID</u>	<u>Lab ID</u>
08-T004-S001	9108L518-011

Heartland ESI has reviewed the data from the samples listed above for the Pesticide/PCB Toxicity Characteristics Leaching Procedure (TCLP) Target Compound List (TCL) based upon analytical and quality assurance requirements specified in the EPA CLP Statement of Work (SOW) 2/88 and 9/88 revisions, using the EPA Region II Standard Operating Procedure (SOP) HW-6, Revision 7, 3/90. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of the U.S. EPA CLP and Region II. This screening assumes that the analytical results are correct as reported and merely provides and interpretation of the reported quality control results.

Individual analytical fractions were reviewed as follows:

- * Pesticide/PCB by Christopher D. Scarpellino with secondary review by Eugene M. Watson

00001



QUALIFICATION CODES

- U = Not detected
 - J = Estimated value
 - UJ = Reported quantitation limit is qualified as estimated
 - R = Result is rejected and unusable
 - N = Result is negated, do not consider result in sample
 - NJ = Presumptive evidence for the presence of the material at an estimated value
-

Heartland ESI specific findings are footnoted numerically on the Form Is in this data validation report. These specific finding footnotes refer to findings listed in the Data Assessment Narrative which describe the reasons for qualifications applied to the data.



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
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No Specific Findings were identified which directly impact the reported non-detect results for the one TCLP water sample.

- * DL denotes the Form I laboratory qualifier/value
 - + in the DL column denotes a positive result
 - in the DL column denotes a negative result
- QL denotes the qualifier/value used by Heartland ESI



**DATA ASSESSMENT NARRATIVE
PESTICIDE/PCB ANALYSIS**

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

In general, the laboratory performance was poor. The chromatography was generally of poor quality. All analyses were performed on packed columns utilizing peak heights for compound quantitation.

Significant electropositive baseline displacements (negative deflections or peaks) were observed in chromatograms from the primary analyses.

Holding Times

The sample was extracted and analyzed within holding times.

GC Instrument Performance

The peak for Endrin ketone resulting from the analyses of the INDB 27-56 standard 9/13/91 at 21:06 on the primary, 2250/2401 column was outside the laboratory provided retention time window (RTW). All associated sample chromatograms were carefully reviewed with a slightly expanded RTW. No peaks near the RTW were identified.

All percent breakdowns were less than 20%. The DBC retention time differences (%Ds) were within QC limits for all standards, samples and blanks.

Initial Calibration

The %RSD for Aldrin and 4,4'-DDT in the initial calibration of both the confirmation sequences associated with this batch exceeded the QC limit. The laboratory reported results for two samples which were quantified from one of these non-linear confirmation column analyses. These reported results are rejected in favor of reviewer quantitations determined from the primary analysis as specified in the Identification/Quantitation section of this report, following.

Continuing Calibrations

No qualification of the reported results were required based on the reported continuing calibrations.



DATA ASSESSMENT NARRATIVE - continued - Page 2

Blanks

No target compounds were confirmed in either the water method blank or the reported leachate method blank (LCHBLK). Non-target contaminant peaks were identified in the primary analyses at retention times of approximately 3.0 and 4.0 minutes in both blanks. These contaminant peaks were significantly larger in the leachate blank.

Surrogate Recoveries

All DBC surrogate recoveries were within the required QC limits.

Matrix Spike/Matrix Spike Duplicate

No MSD was performed for this sample. No qualifications were required based on the Recoveries reported for the Matrix Spike or the reported water Blank Spike.

However, gamma-BHC was arbitrarily quantitated by the laboratory from the confirmation analyses of the MS and BS. These quantitations make the associated Form 9s incorrect for the Y/N designations for quantitation. Similarly, Methoxychlor was arbitrarily quantified from the confirmation column for the Blank Spike. These reported results are rejected in favor of the concentrations and recoveries obtained from the primary analysis, which are still within QC limits.

Quantitative results for gamma-BHC from the primary analysis:

MS - 0.045 ug/L - 20% Recovery
BS - 0.050 ug/L - 50% Recovery

Quantitative results for Methoxychlor from the primary analysis:

BS - 2.40 ug/L - 120% Recovery

In addition, interferences were reported for the recoveries of Heptachlor and Endrin in the Matrix Spike. A probable interferent was identified for Heptachlor in the leachate blank (LCHBLK). However, only a negative baseline deflection was observed near the Endrin Retention Time Window (RTW). The reported recovery result for Endrin, "I", is rejected in favor of the reviewer calculated results.

Quantitative results for Endrin in the Matrix Spike:

Endrin = 0.795 ug/L = 175% Recovery *(outside QC limit)

The reported spiking concentrations do not correlate well with the reported target compound CRQLs. Alpha- and Gamma-Chlordane were reportedly spiked at approximately 2.6 times the reported CRQLs. Other compounds were spiked at approximately 4 times the CRQLs, except Gamma-BHC which was approximately twice the reported CRQL.



Matrix Spike/Matrix Spike Duplicate (continued)

The laboratory is very strongly urged not to misrepresent or unduly bias required QC results and/or to provide a full and accurate description of what was done and why in the Case Narrative.

Analyte Identification/Quantitation

No TCLP Target compounds were identified in the sample.

Overall Assessment

The overall quality of the data was poor, although it was packaged well. The reported results are reluctantly accepted as presented.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

0000010

CLIENT SAMPLE NO.

08-T004-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-02-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9108L518-011

Sample wt/vol: 430 (g/mL) ML Lab File ID: 09139103.37

Level: (low/med) LOW Date Received: 08/21/91

% Moisture: not dec. dec. Date Extracted: 08/30/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 09/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

76-44-8-----	Heptachlor	0.12	U
5103-71-9-----	alpha-Chlordane	1.2	U
5103-74-2-----	gamma-Chlordane	1.2	U
58-89-9-----	gamma-BHC (Lindane)	0.12	U
72-20-8-----	Endrin	0.23	U
72-43-5-----	Methoxychlor	1.2	U
8001-35-2-----	Toxaphene	2.3	U
1024-57-3-----	Heptachlor Epoxide	0.12	U

DS
9-18-91

FORM 1 PEST

12/88 Rev.

00007

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW Lot # 9108L518 (TCLP)

LAB: Roy F. Weston - Linnville

SITE: Naval Weapons Station / Earle
Colts Neck, NJ

1.0 Data Completeness and Deliverables

YES NO N/A

1.1 Have any missing deliverables been received and added to the data package.

ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.

1.2 Was SMO CCS checklist included with package?

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

2.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?

3.0 Data Validation Checklist

The following checklist is divided into three parts. Part A is filled out if the data package contains any VOA analyses, Part B for any BVA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?

BVA data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

PART C: PESTICIDE/PCB ANALYSES

YES NO N/A

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

ACTION: Use professional judgement to evaluate the effect on the quality of the data.

ACTION: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).

2.0 Holding Times

2.1 Have any PEST/PCB holding times, determined from date of collection to date of extraction, been exceeded?

Samples for PEST/PCB analysis, both soils and waters, must be extracted within seven days of the date of collection. Extracts must be analyzed within 40 days of the date of extraction.

TCLP extract generated (7) seven days after soil sample collected

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water

b. Med Water

c. Low Soil

d. Med Soil

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water

b. Med Water

c. Low Soil

d. Med Soil

ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.

YES NO N/A

3.3 Were outliers marked correctly with an asterisk?

ACTION: Circle all outliers in red.

3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

ACTION: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J". If recovery is zero, flag positive results "J" and non-detects "R". If recovery for the blank is zero, flag non-detects for all associated samples "R". If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewers professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

3.5 Are there any transcription/calculation errors between raw data and Form II?

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

4.0 Matrix Spikes (Form III)

*Matrix Spike only
no Dup.*

4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water

b. Med Water

c. Low Soil

d. Med Soil

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

Water

Soils

3 out of 12

NA out of 12

00010

YES NO N/A

4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water Soils
NA out of 6 NA out of 6

ACTION: If MS and MSD both have less than zero recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for MS/MSD analysis. Use professional judgement in applying this criterion to other samples.

Spiking concentrations do not correlate well with reported CRQLs

** alpha & gamma Chlordane were spiked ~ a factor of 2.6 below the reported CRQLs.*

** Other spds ~ 4x the CRQL except gamma-BHC ~ 2x CRQL*

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

5.2 Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, med water, low soil, medium soil), whichever is more frequent?

5.3 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.

Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?

ACTION: Use professional judgement to determine the effect on the data.

Significant Neg. Deflection in primary analysis

- poor chromatography but no TCLP Target spds. in the RT interval

6.0 Contamination

NOTE: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

6.2 Do any field/rinse blanks have positive PEST/PCB results?

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

YES NO N/A

NOTE: Only field/rinse blanks taken the same day as the samples are used to qualify data. Blanks may not be qualified because of contamination in another blank. Blanks may be qualified for surrogate, spectral, tuning or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5x blank value
Flag sample result with a "U"; cross out "B" flag	Reject sample result and report CRQL; cross out "B" flag	No qualification is needed

6.3 Are there field/rinse/equipment blanks associated with every sample?

ACTION: For low level samples, note in data assessment that there is no associated field/rinse/equipment blank. Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) column present:

- a. Evaluation Standard Mix A
- b. Evaluation Standard Mix B
- c. Evaluation Standard Mix C
- d. Individual Standard Mix A
- e. Individual Standard Mix B
- f. Multi-component Pesticides Toxaphene & ~~Chlordane~~ ^{NR}
- g. Aroclors 1016/1260 ^{CPS}
- h. Aroclors 1221, 1232, 1242, 1248, and 1254 ^{10/30/91}

ACTION: If no, take action specified in 3.2 above

	YES	NO	N/A
7.2 Is Form VIII Pest-1 present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no, take action specified in 3.2 above.

7.3 Are there any transcription/calculation errors between raw data and Form VIII?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

7.4 Has the total breakdown on quantitation or confirmation column exceeded 20% for DOT?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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- for Endrin?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------

or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DOT and Endrin breakdown exceeded 20%?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION:

a. If DOT breakdown is greater than 20% on quantitation column beginning with the samples following the last in control standard:

1. Flag all positive DOT results "J".
2. If DOT was not detected but DDD and/or DDE are positive, flag the DOT non-detect "R".
3. Flag positive DDD and DDE results "JN".
4. If DOT breakdown is > 20% on confirmation column and DOT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether DOT should be reported on Form I (if reported, flag result "N").

b. If Endrin breakdown is > 20% on quantitation column, beginning with the samples following the last in control standard:

1. Flag all positive Endrin results "J".
2. If Endrin was not detected, but Endrin Aldehyde and/or Endrin Ketone are positive, flag the Endrin non-detect "R".
3. Flag Endrin Ketone positive results "JN".
4. If Endrin breakdown is > 20% on confirmation column and Endrin is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin should be reported on Form I (if reported, flag result "N").

c. If the combined breakdown is used (it can only be used if the conditions in 7.4 above are met) and is > 20% on quantitation column beginning with the last in control standard, take the actions specified in 7.4 a and b above. If the combined breakdown is >20% on confirmation column and Endrin or DOT is identified on quantitation column but not on confirmation column, use professional judgement to determine whether Endrin or DOT should be reported on Form I (if reported, flag result "N").

7.5 Is the linearity check RSD of all four calibration factors <10% for the quantitation column?

YES NO N/A

ACTION: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

*Conf. column
 > 10% RSD
 for Aldrin + DDT*

7.6 Is the % difference between the EVAL A and each analysis (quantitation and confirmation) DBC retention time within QC limits (2% for packed column, 0.3% for capillary [I.D. < 0.32 mm], 1% for megabore [0.32 < I.D. < 2 mm]) ?

ACTION: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgement to determine the reliability of the analysis and flag results "R", if appropriate.

7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW).

ACTION: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.

3.0 Pesticide/PCB Standards Summary

8.1 Is Form IX present and complete for each GC column and 72 hr sequence of analyses?

ACTION: If no, take action specified in 3.2 above.

8.2 Are there any transcription/calculation errors between raw data and Form IX?

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

*Not exactly transcription
 - lab decided arbitrarily
 to quant some spike caps.
 from cont. - not indicated*

8.3 Is DOT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?

ACTION: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

8.4 Do all standard retention times fall within the windows established for the first IND A and IND B analyses?

ACTION: Beginning with the samples following the last in control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and, DBC is visible non-detects are valid. If peaks are present and cannot be identified through "pattern recognition" or a consistent shift in standard retention times, flag all affected compound results "R".

YES NO N/A

*Endrin Ketone INDB
27-56 9/13/91 12:06 2250/2m1
- late peak at 22.76
co-elutes with DBC*

8.5 Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hr sequence) calibration factors?

Closing Stds. only

ACTION: If no, flag all associated positive results "J". Use professional judgement to determine whether or not to flag non-detects.

9.0 Pesticide/PCB Identification

9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

ACTION: If no, take action specified in 3.2 above.

9.2 Are there any transcription errors between raw data and Form X?

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

9.3 Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?

ACTION: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e. base on RRT to DBC).

9.4 Check chromatograms for false negatives, especially for the multiple peak components toxaphene and PCB's. Were there any false negatives?

ACTION: If appropriate PCB standards were not analyzed, or if the lab performed no confirmation analysis, flag the appropriate data with an "R".

	YES	NO	N/A
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10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Were any errors found?

— —

NOTE: Simple peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. The reviewer should use professional judgement to decide whether a much larger concentration obtained on one column versus the other indicates the presence of an interfering compound. If an interfering compound is indicated, the lower of the two values should be reported and qualified as presumptively present at an estimated quantity ("JN"). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has obscured the attempt at a second column confirmation.

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

—

ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.

11.0 Chromatogram Quality

11.1 Were baselines stable?

—

11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?

—

11.3 Were early eluting peaks (for early eluting analytes) resolved to baseline?

— —

ACTION: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

	YES	NO	N/A
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12.0 Field Duplicates

12.1 Were any field duplicates submitted for PEST/PCB analysis?

YES NO N/A

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 91082518 SDG No. 08-T004-5001 LABORATORY ^{R.F. Weston} Lionville SITE NWS/Earle
TCLP Colts Neck, NJ.

DATA ASSESSMENT:

The current functional guidelines for evaluating organic data have been applied.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable), or "NJ" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Reviewer's Signature: [Signature] Date: 10/31/1991

Verified By: [Signature] Date: 11/4/1991

(AA)

DATA ASSESSMENT:

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples will be qualified as estimated, "J". The non-detects sample quantitation limits will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

All samples were extracted and analyzed within the required TCLP holding times. No action

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Water blanks measure potential contamination of the distilled water used during decontamination of field equipment. If the concentration of the analyte is less than 5 times (10 times for the common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the samples shown were qualified with "U" for these reasons:

A) Method blank contamination

Leachate blank contained numerous large peaks, although only DDD and DDT were within RTW on primary and were not confirmed. Peak in LCHBLK @ 3.06 on 1° probably interfered with Heptachlor recovery, as reported by lab. However, no similar interference was noted near the Endrin RTW, only a negative baseline deflection.

B) Field or rinse blank contamination

The Method Blank contains only minor peaks except for the recurring contamination peak at 3.97 RT on 1°. No targets confirmed.

C) Water blank contamination

D) Trip blank contamination

DATA ASSESSMENT:

5. CALIBRATION:

A) PERCENT RELATIVE STANDARD DEVIATION (%RSD) AND PERCENT DIFFERENCE (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be <30% and %D must be <25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If there is a gross deviation of %RSD and %D, the non-detects may be qualified as rejected, "R".

For the PCB/PESTICIDE fraction, %RSD for aldrin, endrin, DDT, and dibutylchloroendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

The %RSD for Aldrin & DDT exceeded 10% in the initial calibration of the confirmation column, SP2100. No positive results were reportedly quantified from this column. However, closer inspection of the data reveals that gamma-BHC and Methoxychlor were quantified from the conf. column for the Blank Spike and that gamma-BHC was quantified from conf. in the Matrix Spike

Endrin Ketone was outside the RTW in INDB 27-56 9/13/91 21:06 on the primary column. All sample chromatograms were carefully reviewed and no peaks near the RTW were identified. Closing stds. had many %Ds outside QC limits. No impact was identified on the associated sample data.

DATA ASSESSMENT:

6. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation in order to evaluate the laboratory performance and to estimate the efficiency of the analytical technique. If the measured surrogate concentration is outside of the contract specifications, qualifications were applied to the samples and analytes as shown below.

All surrogate recoveries were within the QC limits. The recovery for the MS was significantly higher than the sample itself, 151 and 63, respectively. No action required.

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

TCL compounds are identified on the GC/MS by using the analytes relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary M/E lines within 20% of that in the standard compound. For the tentatively identified compounds, TIC, the ion spectra must match accurately. In the cases where there is not a perfect ion spectrum match, the laboratory may have provided false positive identifications.

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10 ng/uL in the final sample extract.

No TCLP target compounds were confirmed in the sample. NO GC/MS Confirmation was required

DATA ASSESSMENT:

9. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of the data.

No MSD was performed on the one TCLP sample, and Methoxychlor Gamma-BHC were arbitrarily quantified from the confirmation column in the Blank Spike. Gamma-BHC was quantified from the cont. column in the Matrix Spike.

Interferences were reported for the recovery of Heptachlor and Endrin in the Matrix Spike. A probable interferent was identified for Heptachlor in the LCHBLK. However, only a negative baseline deflection was identified near the Endrin RTW.

The reported results for Gamma-BHC and Endrin in the MS are rejected in favor of the reviewer calculated results.

Gamma-BHC = .045 µg/L or 20% Recovery
Endrin = .795 µg/L or 175% Recovery

The reported spiking concentrations do not correlate well with the reported compound CRQLs. Alpha & gamma-Chlordane were spiked \approx a factor of 2.6 below the reported CRQLs. Other compounds were spiked \approx 4x the CRQLs except gamma-BHC which was \approx 2x CRQL, reportedly.

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

*Gamma-BHC & Methoxychlor quantified from confirmation,
for Blank Spike*

gamma-BHC = 0.05 μ L or 50% Recovery

Methoxychlor = 2.40 μ g/L or 120% Recovery

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Poor chromatography

12. CONTRACT PROBLEMS NON-COMPLIANCE:

Apparently unduly biased QC results

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

only one Form I

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

poor.

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO RFW Lot # 9108L518

LABORATORY Roy F. Weston - Lionville

SDG NO. 08-T004-5001

DATA USER _____

SOW: CLP 2/88 (TCLP)

REVIEW COMPLETION DATE 10/31/91

NO. OF SAMPLES 1 WATER _____ SOIL _____ OTHER _____

REVIEWER () ESD () ESAT OTHER, CONTRACT/CONTRACTOR Heartland ESI

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	_____	<u>0</u>	_____
2. GC-MS TUNE/ GC PERFORMANCE	_____	_____	<u>0</u>	_____
3. INITIAL CALIBRATIONS	_____	_____	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	_____	_____	<u>0</u>	_____
5. FIELD BLANKS (F = not applicable)	_____	_____	<u>F</u>	_____
6. LABORATORY BLANKS	_____	_____	<u>0</u>	_____
7. SURROGATES	_____	_____	<u>0</u>	_____
8. MATRIX SPIKE/DUPLICATES	_____	_____	<u>0</u>	_____
9. REGIONAL QC (F = not applicable)	_____	_____	<u>F</u>	_____
10. INTERNAL STANDARDS	_____	_____	_____	_____
11. COMPOUND IDENTIFICATION	_____	_____	<u>0</u>	_____
12. COMPOUND QUANTITATION	_____	_____	<u>0</u>	_____
13. SYSTEM PERFORMANCE	_____	_____	<u>0</u>	_____
14. OVERALL ASSESSMENT	_____	_____	<u>0</u>	_____

- O = No problems or minor problems that do not affect data usability.
- X = No more than about 5% of the data points are qualified as either estimated or unusable.
- M = More than about 5% of the data points are qualified as estimated.
- Z = More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: _____

AREAS OF CONCERN: Apparent undue bias of required QC

DEFLECTION SUMMARY FORM
(No. of Compounds/No. of Fractions (Samples))

SOP NO: HW-6
Date: February 1989

Type of Review: CLP 2/88 (TCLP) Date: 10/31/91 Case #: 91082518
 Project: Naval Weapons Station/Earle Colts Neck, NJ Lab Name: Roy F. Weston - Lionville
 Reviewer's Initials: CPS [Signature] Number of Samples: 1 (TCLP)

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Continuation	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VDA (35)								
PEST (20)	ϕ	ϕ	ϕ	ϕ	ϕ	ϕ	1	$\phi/20$ ⁸ _{10/31/91} CPS
IXI (7)								
IXD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VDA (35)								
PEST (20)	ϕ	ϕ	ϕ	ϕ	ϕ	ϕ	1	$\phi/8$
IXI (7)								
IXD (1)								

00028