

Original



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June 18, 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 March 11, 1991. There were five (5) water samples plus one (1) MS/MSD which were analyzed by the Roy F. Weston Gulf Coast Laboratory included in this analytical batch.

Samples Reviewed

Water Samples (all)

<u>Field ID</u>	<u>Lab ID</u>
26-001-M001	9103L902-001
26-002-M001	9103L902-002
26-003-M001	9103L902-003
26-003-M001MS	9103L902-003MS
26-003-M001MSD	9103L902-004MSD - 3MSD ^{CDS} 6/19/91
26-004-M001	9103L902-004
26-004-M201	9103L902-005

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



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 performed very well in adherence to the analytical protocol and the production of good chromatographic results and an excellent data package. All analyses were performed on packed columns utilizing peak heights for compound quantitation.

Holding Times

All of the samples met the required extraction and analysis holding times.

GC Instrument Performance

The peaks resulting from all standards analyses fell within the laboratory provided retention time windows for all target analytes. The percent breakdown for DDT exceeded 20% on the primary column analysis of the EVAL B 3/22/91 at 23:39 on Instrument 07. No positive hits for DDT or its associated breakdown products DDD and DDE were identified in any of the associated samples. Therefore, no qualification of the data was required. The DBC retention time differences (%Ds) were within QC limits for all standards, samples and blanks.

Initial Calibration

The calibration factors (CFs) and %RSD of the initial calibrations associated with this data package were within QC limits.

Continuing Calibrations

All reported continuing calibration standards peaks were within the laboratory established retention time windows. Several reported continuing calibration standards had compound calibration factors (CFs) outside the established %D QC limits for quantitation.



Continuing Calibrations (continued)

Specific Finding

1. The Endrin CF exceeded the %D limit for quantitation in INDB standards analyzed 3/18/91 12:39 and 3/19/91 04:41. The Alpha-BHC CF exceeded the %D limit for quantitation in the INDB standard analyzed 3/20/91 02:30. The DDT CF exceeded the %D limit for quantitation in the INBA standard analyzed 3/23/91 02:40. None of the associated samples in this batch had positive hits for any of these compounds. Therefore, no qualification was required.

Blanks

No target compounds were detected in the associated method blank. No field blank associated with these samples was identified for this fraction.

Surrogate Recoveries

All surrogate recoveries were good and within the required control limits.

Matrix Spike/Matrix Spike Duplicate

The MS/MSD % Recoveries and %RPDs were excellent, 95-110% and 0-9, respectively, and well within the CLP control limits. The laboratory also reported good results from the analysis of a Blank Spike and Blank Spike Duplicate. However, the CLP limits were reported for the BS/BSD Recoveries and RPDs. The laboratory should provide internal control limits generated through the use of control chart statistics for these QC parameters as specified by the NEESA QA protocol.

Analyte Identification/Quantitation

No target compounds were detected in any of the samples. No significant baseline elevations or interferences were noted.

Overall Assessment

The overall quality of the data package was excellent. The reported non-detect results for the samples are accepted without qualification as presented by the laboratory on the Form Is.



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>
All	All	U		No specific findings were identified for this sample batch which required qualification of the data

- * 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 used by Heartland ESI

ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

26-001-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L902-001

Sample wt/vol: 880 (g/mL) ML Lab File ID: 03209107.36

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/15/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/21/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.057	U
319-85-7	Beta-BHC	0.057	U
319-86-8	Delta-BHC	0.057	U
58-89-9	gamma-BHC (Lindane)	0.057	U
76-44-8	Heptachlor	0.057	U
309-00-2	Aldrin	0.057	U
1024-57-3	Heptachlor epoxide	0.057	U
959-98-8	Endosulfan I	0.057	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.57	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.57	U
5103-74-2	gamma-Chlordane	0.57	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.57	U
11104-28-2	Aroclor-1221	0.57	U
11141-16-5	Aroclor-1232	0.57	U
53469-21-9	Aroclor-1242	0.57	U
12672-29-6	Aroclor-1248	0.57	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

26-002-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L902-002

Sample wt/vol: 890 (g/mL) ML

Lab File ID: 03209107.37

Level: (low/med) LOW

Date Received: 03/14/91

% Moisture: not dec. dec.

Date Extracted: 03/15/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 03/21/91

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.056	U
319-85-7	Beta-BHC	0.056	U
319-86-8	Delta-BHC	0.056	U
58-89-9	gamma-BHC (Lindane)	0.056	U
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.056	U
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.56	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.56	U
5103-74-2	gamma-Chlordane	0.56	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.56	U
11104-28-2	Aroclor-1221	0.56	U
11141-16-5	Aroclor-1232	0.56	U
53469-21-9	Aroclor-1242	0.56	U
12672-29-6	Aroclor-1248	0.56	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

FORM 1 PEST

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ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

26-003-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 91031902-003

Sample wt/vol: 920 (g/mL) ML Lab File ID: 03209107.39

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/15/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 03/21/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.054	U
319-85-7	Beta-BHC	0.054	U
319-86-8	Delta-BHC	0.054	U
58-89-9	gamma-BHC (Lindane)	0.054	U
76-44-8	Heptachlor	0.054	U
309-00-2	Aldrin	0.054	U
1024-57-3	Heptachlor epoxide	0.054	U
959-98-8	Endosulfan I	0.054	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.54	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.54	U
5103-74-2	gamma-Chlordane	0.54	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.54	U
11104-28-2	Aroclor-1221	0.54	U
11141-16-5	Aroclor-1232	0.54	U
53469-21-9	Aroclor-1242	0.54	U
12672-29-6	Aroclor-1248	0.54	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

26-004-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L902-004

Sample wt/vol: 930 (g/mL) ML Lab File ID: 03209107.42

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/15/91

Extraction: (SepF/Cont/Sonc) SEPE Date Analyzed: 03/21/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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

319-84-6	Alpha-BHC	0.054	U
319-85-7	Beta-BHC	0.054	U
319-86-8	Delta-BHC	0.054	U
58-89-9	gamma-BHC (Lindane)	0.054	U
76-44-8	Heptachlor	0.054	U
309-00-2	Aldrin	0.054	U
1024-57-3	Heptachlor epoxide	0.054	U
959-98-8	Endosulfan I	0.054	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.54	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.54	U
5103-74-2	gamma-Chlordane	0.54	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.54	U
11104-28-2	Aroclor-1221	0.54	U
11141-16-5	Aroclor-1232	0.54	U
53469-21-9	Aroclor-1242	0.54	U
12672-29-6	Aroclor-1248	0.54	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

FORM 1 PEST

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ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

26-004-M201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L902-005

Sample wt/vol: 880 (g/mL) ML

Lab File ID: 03209107.43

Level: (low/med) LOW

Date Received: 03/14/91

% Moisture: not dec. dec.

Date Extracted: 03/15/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 03/21/91

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.057	U
319-85-7	Beta-BHC	0.057	U
319-86-8	Delta-BHC	0.057	U
58-89-9	gamma-BHC (Lindane)	0.057	U
76-44-8	Heptachlor	0.057	U
309-00-2	Aldrin	0.057	U
1024-57-3	Heptachlor epoxide	0.057	U
959-98-8	Endosulfan I	0.057	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.57	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.57	U
5103-74-2	gamma-Chlordane	0.57	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.57	U
11104-28-2	Aroclor-1221	0.57	U
11141-16-5	Aroclor-1232	0.57	U
53469-21-9	Aroclor-1242	0.57	U
12672-29-6	Aroclor-1248	0.57	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

FORM 1 PEST

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PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9103L902
 LAB: Roy F. Weston, Inc. - Gulf Coast
 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.

EVAL, INDA+B,
 and Spiking Mixture
 Concentrations.

1.2 Was SMD OCS 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.

1 VOA only sample received broken 26002-M301

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

all waters

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.

*Collected: 3/11/91 ✓
 Extracted: 3/15/91 ✓
 Analyzed: 3/17-23/91 ✓*

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.

3.3 Were outliers marked correctly with an asterisk? YES NO N/A

ACTION: Circle all outliers in red. *all surrogate recoveries within limits*

3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank? YES NO N/A

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? YES NO N/A

ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions". *Minor rounding errors on surrogate recovery form - no action*

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present? YES NO N/A

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

a. Low Water	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Med Water	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Low Soil	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Med Soil	<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	<u>NA</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

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.

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.

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
- 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? | <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? <i>except minor rounding errors</i> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 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 DDT? <i>EVALD 3/22/91 23:39 Instr. 07</i> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - for Endrin? <i>- No positive hits in samples -</i> | <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 DDT and Endrin breakdown exceeded 20%? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ACTION: | | | |
| a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last <u>in control</u> 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 <u>in control</u> 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 <u>in control</u> 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 DDT 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"/>
--	-------------------------------------	--------------------------	--------------------------

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"/>
---	-------------------------------------	--------------------------	--------------------------

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"/>
--	-------------------------------------	--------------------------	--------------------------

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"/>
--	--------------------------	-------------------------------------	--------------------------

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

8.3 Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

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

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

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?

minor *no positive hits - no action*

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

*Endrin out INDBs 3/18/91 12:39
 + 3/19/91 04:41*

*Alpha-BHC out INPB 3/20/91 02:30
 DDT out INDA 3/23/91 02:40*

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 toxaphens 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
10.0 <u>Compound Quantitation and Reported Detection Limits</u>			

- 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.

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.

TOTAL REVIEW

CLP DATA ASSESSMENT

Project: *Naval Weapons Station, Earle, Colts Neck, NJ*
Functional Guidelines for Evaluating Organics Analysis

Case No. 9103L902 SDG No. _____ LABORATORY ^{Roy F. Weston} Gulf Coast SITE NWS Colts Neck

DATA ASSESSMENT: *Pest/PCB*

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: 6/17/1991

Verified By: *[Signature]* Date: 6/19/1991

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.

No action required
CJS
4/17/91
5 X Water samples + 1 MS/MSD
Collected: 3/11/91
Extracted: 3/15/91
Analyzed: 3/17-23/91

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 detected
- very clean blank*

B) Field or rinse blank contamination

NA

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.

Initial

EVAL A 3/17/91 Instr. 7 2250/2401

DDT - Peak Height = 6949

(0.00670 ng/ μ L)(3 μ L inj.)

CF = 37572.139

EVAL C 3/17/91

Aldrin CF = 148821 / (0.02360)(3) = 2101991.5

DDT %RSD Instr. 7 2250/2401

CF \bar{x} = 374320.0

sd = 24890.86

%RSD = 6.649

Continuing

Instr. 7

Endrin - out - 3/18/91 12:39 INPB + 3/19/91 04:41 INDB

Alpha-BHC - out - 3/20/91 02:30 FNDB

DDT - out - 3/23/91 02:40 FNDA

*No positive hits
in samples -
no action*

00024

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.

DBC $0.572 \text{ ng}/10 \text{ ml (final vol.)} = 0.0572 \text{ ng/ml}$
expected extract concentration

Example: Sample 26-004-M001

$$\text{DBC } T_{\text{Rec}} = 0.049 / 0.0572 \times 100 = 85.6\%$$

- Lab reported 84% - probably due to rounding errors in form generation software

- All surrogate recoveries good.

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.

*All standards fall within laboratory reported retention time windows - primary and confirmation.
No samples required GC/MS confirmation - no positive hits*

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.

*Excellent MS/MSD Recoveries, ranging from
95 to 110% & RPDs from 0 to 9.*

*Blank Spike & Blank Spike Duplicate Recoveries
ranged from 79 to 114% with RPDs from 0 to 3%*

*Spike concentrations verified by laboratory —
Recovery calculations verified —*

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent

12. CONTRACT PROBLEMS NON-COMPLIANCE:

None

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.

No re-extractions or re-analyses required. Use non-detect values as reported on undiluted & only Form Is for samples:

*26-001-M001
26-002-M001
26-003-M001
26-004-M001
26-004-M201*

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent system performance and package.

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9103L902

LABORATORY Roy F. Weston - Gulf Coast

SDG NO. _____

DATA USER _____

SOW: 2/88 Region II Mods.

REVIEW COMPLETION DATE 6/18/91

NO. OF SAMPLES 5 WATER _____ SOIL _____ OTHER _____

REVIEWER ESD ESAT OTHER, CONTRACT/CONTRACTOR _____

	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: _____

DEFLECTION SUMMARY FORM

(No. of Components/No. of Fractions (Samples))

SOP NO: HW-6

Date: February 1989

Type of Review: Region II CLP Post/PCB 2/88

Info: 6/18/91

Case #: 9103L902

Project: Naval Weapons Station/Earle - Colts Neck, NJ

Lab Name: Roy F. Weston - Gulf Coast

Reviewer's Initials: Matthew D. Reynolds CDS

Number of Samples: 5

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Continuation	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
H/N (50)								
VIA (35)								
PEST (20)	0	0	0	0	0	0	5	0/100
ICD (7)								
ICD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VIA (35)								
PEST (20)	0	0	0	0	0	0	5	0/100
ICD (7)								
ICD (1)								

HEARTLAND Environmental Services, Inc.

CONVERSATION RECORD		Time: <u>5pm</u>	Date: <u>6/17/91</u>	Project: <u>Naval Weapons Station - Earle - Colts Neck, NJ</u>
Telephone: Incoming	<input type="checkbox"/>	Person(s) Contacted: <u>Linda Mackley</u>		
Outgoing	<input checked="" type="checkbox"/>	Organization: <u>Roy F. Weston - Gulf Coast Lab</u>		
Conference:	<input type="checkbox"/>	Address: _____		
Location:		Phone: <u>708-534-5200</u>		

SUBJECT Request for Standards Concentrations information

SUMMARY Requested EVAL & IND concentrations used for RFW Lot # 9103L902 & 90103L904
Also request concentrations of spiking mixtures.

EVAL & IND available immediately (see Fax 17:25 6/17)
Spiking information to be faxed 6/18/91

Continuation or Follow-up Required: Spiking Concentrations to be faxed tomorrow

DOCUMENTED BY: Chris Scarpellino [Signature] 6/17/91
 Name (print) Signature Date

EVAL Mix Concentrations

Component	EVALA conc. (ng/uL)	EVALB conc. (ng/uL)	EVALC conc. (ng/uL)
ALDRIN	0.00236	0.01180	0.02360
ENDRIN	0.00312	0.01560	0.03120
4,4'-DDT	0.00670	0.03350	0.06700
DBC	0.01164	0.05820	0.11640

Post-It™ brand fax transmittal memo 7871		# of pages ▶ 2
To Chris Scarpellino	From Linda Mackley	
Co. Heartland ESI	Co. WESTON/GULF COAST	
Dept.	Phone # (708) 534-5200	
Fax # (314) 278-8232	Fax # (708) 534-5211	

STANDARD CONCENTRATION SUMMARY

COMPOUND	NG/UL	UL INJECTED	TOTAL NG INJECTED
ALPHA-BHC	0.0050	3.0	0.0150
GAMMA-BHC	0.0101	3.0	0.0303
BETA-BHC	0.0255	3.0	0.0765
HEPTACHLOR	0.0119	3.0	0.0357
DELTA-BHC	0.0101	3.0	0.0303
ALDRIN	0.0101	3.0	0.0303
HEPT. EPOXIDE	0.0112	3.0	0.0336
G. CHLORDANE	0.0100	3.0	0.0300
A. CHLORDANE	0.0100	3.0	0.0300
ENDOSULFAN I	0.0164	3.0	0.0492
4,4'-DDE	0.0105	3.0	0.0315
DIELDRIN	0.0157	3.0	0.0471
ENDRIN	0.0255	3.0	0.0765
4,4'-DDD	0.0254	3.0	0.0762
ENDOSULFAN II	0.0208	3.0	0.0624
4,4'-DDT	0.0344	3.0	0.1032
ENDRIN ALDEHYDE	0.0314	3.0	0.0942
ENDO. SULFATE	0.0450	3.0	0.1350
DBC	0.0582	3.0	0.1746
ENDRIN KETONE	0.0283	3.0	0.0849
METHOXYCHLOR	0.2025	3.0	0.6075
AROCLOR 1016	0.5280	3.0	1.5840
AROCLOR 1221	0.5090	3.0	1.5270
AROCLOR 1232	0.5090	3.0	1.5270
AROCLOR 1242	0.5130	3.0	1.5390
AROCLOR 1248	0.5690	3.0	1.7070
AROCLOR 1254	0.5220	3.0	1.5660
AROCLOR 1260	0.5320	3.0	1.5960
TOXAPHENE	1.0200	3.0	3.0600
** ALDRIN IN INDB	0.0101	3.0	0.0303
** DBC IN INDB	0.0582	3.0	0.1746

Pesticide Spike Concentrations

COMPOUND	UG/ML
gamma-BHC (Lindane)	0.101
Heptachlor	0.101
Aldrin	0.100
Dieldrin	0.253
Endrin	0.268
4,4'-DDT	0.256

Chris,

6-18-91

These are the concentrations of our spike compounds. If you have any questions please give me a call.

Linda Mackley
Weston / Gulf Coast Labs
708 534-5200

Post-It™ brand fax transmittal memo 7671		# of pages ▶	1
To	Chris Scarpellino	From	Linda Mackley
Co.	Heartland EST	Co.	Weston / Gulf Coast
Dept.		Phone #	708 534-5200
Fax #	(314) 278-8232	Fax #	708 534- 5200 5211

00035



HEARTLAND ENVIRONMENTAL SERVICES, INC.

P.O. BOX 163 ST. PETERS MO 63376
(314) 278-8232

June 19, 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 March 12, 1991. There were seven (7) water samples which were analyzed by the Roy F. Weston Gulf Coast Laboratory included in this analytical batch.

Samples Reviewed

Water Samples (all)

<u>Field ID</u>	<u>Lab ID</u>
10-001-M001	9103L904-001
10-002-M001	9103L904-002
10-003-M001	9103L904-003
10-004-M001	9103L904-004
10-005-M001	9103L904-005
10-007-M001	9103L904-006
10-007-M201	9103L904-007

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

00001



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 performed very well in adherence to the analytical protocol and the production of good chromatographic results and an excellent data package. All analyses were performed on packed columns utilizing peak heights for compound quantitation.

Holding Times

All of the samples met the required extraction and analysis holding times.

GC Instrument Performance

The peaks resulting from all standards analyses fell within the laboratory provided retention time windows for all target analytes. All percent breakdowns were below 20%. The DBC retention time differences (%Ds) were within QC limits for all standards, samples and blanks.

Initial Calibration

The %RSD for DDT was greater than 10% in the initial calibration for the confirmation analysis. This had no impact on the non-detect sample data or the quantitation of DDT in the Blank Spike (BS) and Blank Spike Duplicate (BSD).

Continuing Calibrations

All reported continuing calibration standards peaks were within the laboratory established retention time windows. None of the continuing calibration standards had compound calibration factors (CFs) outside the established %D QC limits for quantitation.

Blanks

No target compounds were detected in the associated method blank. No field blank associated with these samples was identified for this fraction.



DATA ASSESSMENT NARRATIVE - continued - Page 2

Surrogate Recoveries

All surrogate recoveries were within the required control limits. Sample 10-007-M001 had a somewhat low recovery for DBC (26%). This sample also exhibited some non-target interference. However, the reviewer believes the DBC recovery and interference did not significantly increase the reported detection limits for this sample.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was analyzed with this batch of samples. The reviewer assumes that the MS/MSD reported with RFW batch 9103L902 also may be applied to this batch. The laboratory reported good results from the analysis of a Blank Spike and Blank Spike Duplicate with this batch of samples, with all Recoveries between 70 and 112%. However, the CLP limits were reported for the BS/BSD Recoveries and RPDs. The laboratory should provide internal control limits generated through the use of control chart statistics for these QC parameters as specified by the NEESA QA protocol.

Analyte Identification/Quantitation

Sample 10-001-M001 had a very small confirmed hit for Dieldrin well below the CRQL. No other target compounds were detected in any of the samples. No significant baseline elevations or interferences were noted.

Overall Assessment

The overall quality of the data package was excellent. The reported non-detect results for the samples are accepted without qualification as presented by the laboratory on the Form Is.



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>
All	All	U		No specific findings were identified for this sample batch which required qualification of the data

* 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 used by Heartland ESI

ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-001-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L904-001

Sample wt/vol: 935 (g/mL) ML

Lab File ID: 03319107.18

Level: (low/med) LOW

Date Received: 03/14/91

% Moisture: not dec. dec.

Date Extracted: 03/18/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 1.00

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

319-84-6	-----Alpha-BHC	0.054	U
319-85-7	-----Beta-BHC	0.054	U
319-86-8	-----Delta-BHC	0.054	U
58-89-9	-----gamma-BHC (Lindane)	0.054	U
76-44-8	-----Heptachlor	0.054	U
309-00-2	-----Aldrin	0.054	U
1024-57-3	-----Heptachlor epoxide	0.054	U
959-98-8	-----Endosulfan I	0.054	U
60-57-1	-----Dieldrin	0.11	U
72-55-9	-----4,4'-DDE	0.11	U
72-20-8	-----Endrin	0.11	U
33213-65-9	-----Endosulfan II	0.11	U
72-54-8	-----4,4'-DDD	0.11	U
1031-07-8	-----Endosulfan sulfate	0.11	U
50-29-3	-----4,4'-DDT	0.11	U
72-43-5	-----Methoxychlor	0.54	U
53494-70-5	-----Endrin ketone	0.11	U
5103-71-9	-----alpha-Chlordane	0.54	U
5103-74-2	-----gamma-Chlordane	0.54	U
8001-35-2	-----Toxaphene	1.1	U
12674-11-2	-----Aroclor-1016	0.54	U
11104-28-2	-----Aroclor-1221	0.54	U
11141-16-5	-----Aroclor-1232	0.54	U
53469-21-9	-----Aroclor-1242	0.54	U
12672-29-6	-----Aroclor-1248	0.54	U
11097-69-1	-----Aroclor-1254	1.1	U
11096-82-5	-----Aroclor-1260	1.1	U

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ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-002-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L904-002

Sample wt/vol: 910 (g/mL) ML

Lab File ID: 03319107.20

Level: (low/med) LOW

Date Received: 03/14/91

% Moisture: not dec. dec.

Date Extracted: 03/18/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) N pH: 6.0

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.055	U
319-85-7	Beta-BHC	0.055	U
319-86-8	Delta-BHC	0.055	U
58-89-9	gamma-BHC (Lindane)	0.055	U
76-44-8	Heptachlor	0.055	U
309-00-2	Aldrin	0.055	U
1024-57-3	Heptachlor epoxide	0.055	U
959-98-8	Endosulfan I	0.055	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.55	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.55	U
5103-74-2	gamma-Chlordane	0.55	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.55	U
11104-28-2	Aroclor-1221	0.55	U
11141-16-5	Aroclor-1232	0.55	U
53469-21-9	Aroclor-1242	0.55	U
12672-29-6	Aroclor-1248	0.55	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-003-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L904-003

Sample wt/vol: 900 (g/mL) ML Lab File ID: 03319107.21

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/18/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS:
319-84-6	Alpha-BHC	0.056 U
319-85-7	Beta-BHC	0.056 U
319-86-8	Delta-BHC	0.056 U
58-89-9	gamma-BHC (Lindane)	0.056 U
76-44-8	Heptachlor	0.056 U
309-00-2	Aldrin	0.056 U
1024-57-3	Heptachlor epoxide	0.056 U
959-98-8	Endosulfan I	0.056 U
60-57-1	Dieldrin	0.11 U
72-55-9	4,4'-DDE	0.11 U
72-20-8	Endrin	0.11 U
33213-65-9	Endosulfan II	0.11 U
72-54-8	4,4'-DDD	0.11 U
1031-07-8	Endosulfan sulfate	0.11 U
50-29-3	4,4'-DDT	0.11 U
72-43-5	Methoxychlor	0.56 U
53494-70-5	Endrin ketone	0.11 U
5103-71-9	alpha-Chlordane	0.56 U
5103-74-2	gamma-Chlordane	0.56 U
8001-35-2	Toxaphene	1.1 U
12674-11-2	Aroclor-1016	0.56 U
11104-28-2	Aroclor-1221	0.56 U
11141-16-5	Aroclor-1232	0.56 U
53469-21-9	Aroclor-1242	0.56 U
12672-29-6	Aroclor-1248	0.56 U
11097-69-1	Aroclor-1254	1.1 U
11096-82-5	Aroclor-1260	1.1 U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-004-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: <u>WATER</u>	Lab Sample ID: <u>9103L904-004</u>
Sample wt/vol: <u>810</u> (g/mL) <u>ML</u>	Lab File ID: <u>03319107.22</u>
Level: (low/med) <u>LOW</u>	Date Received: <u>03/14/91</u>
% Moisture: not dec. <u> </u> dec.	Date Extracted: <u>03/18/91</u>
Extraction: (SepF/Cont/Sonc) <u>SEPF</u>	Date Analyzed: <u>04/01/91</u>
GPC Cleanup: (Y/N) <u>N</u> pH: <u>6.0</u>	Dilution Factor: <u>1.00</u>

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.062	U
319-85-7	Beta-BHC	0.062	U
319-86-8	Delta-BHC	0.062	U
58-89-9	gamma-BHC (Lindane)	0.062	U
76-44-8	Heptachlor	0.062	U
309-00-2	Aldrin	0.062	U
1024-57-3	Heptachlor epoxide	0.062	U
959-98-8	Endosulfan I	0.062	U
60-57-1	Dieldrin	0.12	U
72-55-9	4,4'-DDE	0.12	U
72-20-8	Endrin	0.12	U
33213-65-9	Endosulfan II	0.12	U
72-54-8	4,4'-DDD	0.12	U
1031-07-8	Endosulfan sulfate	0.12	U
50-29-3	4,4'-DDT	0.12	U
72-43-5	Methoxychlor	0.62	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.62	U
5103-74-2	gamma-Chlordane	0.62	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.62	U
11104-28-2	Aroclor-1221	0.62	U
11141-16-5	Aroclor-1232	0.62	U
53469-21-9	Aroclor-1242	0.62	U
12672-29-6	Aroclor-1248	0.62	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-005-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L904-005

Sample wt/vol: 860 (g/mL) ML Lab File ID: 03319107.23

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/18/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.058	U
319-85-7	Beta-BHC	0.058	U
319-86-8	Delta-BHC	0.058	U
58-89-9	gamma-BHC (Lindane)	0.058	U
76-44-8	Heptachlor	0.058	U
309-00-2	Aldrin	0.058	U
1024-57-3	Heptachlor epoxide	0.058	U
959-98-8	Endosulfan I	0.058	U
60-57-1	Dieldrin	0.12	U
72-55-9	4,4'-DDE	0.12	U
72-20-8	Endrin	0.12	U
33213-65-9	Endosulfan II	0.12	U
72-54-8	4,4'-DDD	0.12	U
1031-07-8	Endosulfan sulfate	0.12	U
50-29-3	4,4'-DDT	0.12	U
72-43-5	Methoxychlor	0.58	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.58	U
5103-74-2	gamma-Chlordane	0.58	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.58	U
11104-28-2	Aroclor-1221	0.58	U
11141-16-5	Aroclor-1232	0.58	U
53469-21-9	Aroclor-1242	0.58	U
12672-29-6	Aroclor-1248	0.58	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-007-M001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L904-006

Sample wt/vol: 940 (g/mL) ML Lab File ID: 03319107.24

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/18/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.053	U
319-85-7	Beta-BHC	0.053	U
319-86-8	Delta-BHC	0.053	U
58-89-9	gamma-BHC (Lindane)	0.053	U
76-44-8	Heptachlor	0.053	U
309-00-2	Aldrin	0.053	U
1024-57-3	Heptachlor epoxide	0.053	U
959-98-8	Endosulfan I	0.053	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.53	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.53	U
5103-74-2	gamma-Chlordane	0.53	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.53	U
11104-28-2	Aroclor-1221	0.53	U
11141-16-5	Aroclor-1232	0.53	U
53469-21-9	Aroclor-1242	0.53	U
12672-29-6	Aroclor-1248	0.53	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

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ID
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-007-M201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L904-007

Sample wt/vol: 920 (g/mL) ML Lab File ID: 03319107.26

Level: (low/med) LOW Date Received: 03/14/91

% Moisture: not dec. dec. Date Extracted: 03/18/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.054	U
319-85-7	Beta-BHC	0.054	U
319-86-8	Delta-BHC	0.054	U
58-89-9	gamma-BHC (Lindane)	0.054	U
76-44-8	Heptachlor	0.054	U
309-00-2	Aldrin	0.054	U
1024-57-3	Heptachlor epoxide	0.054	U
959-98-8	Endosulfan I	0.054	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.54	U
53494-70-5	Endrin ketone	0.11	U
5103-71-9	alpha-Chlordane	0.54	U
5103-74-2	gamma-Chlordane	0.54	U
8001-35-2	Toxaphene	1.1	U
12674-11-2	Aroclor-1016	0.54	U
11104-28-2	Aroclor-1221	0.54	U
11141-16-5	Aroclor-1232	0.54	U
53469-21-9	Aroclor-1242	0.54	U
12672-29-6	Aroclor-1248	0.54	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

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PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9103L 904
 LAB: Roy F. Weston - Gulf Coast
 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.

Standards and spike Concentrations for Pest/PCB

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 ENA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?

ENA data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

PART C: PESTICIDE/PCB ANALYSES

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

YES NO N/A

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?

YES NO N/A

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).

(NA) 7 water samples

2.0 Holding Times

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

YES NO N/A

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

YES NO N/A
 YES NO N/A
 YES NO N/A
 YES NO N/A

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

YES NO N/A
 YES NO N/A
 YES NO N/A
 YES NO N/A

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

ACTION: Circle all outliers in red.

All surrogate recoveries within QC limits - 10-007-1001 lower range

3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank? YES NO N/A

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? YES NO N/A

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? YES NO N/A

lab reported blank spike + blank spike dup

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

a. Low Water

Assume MS/MSD reported with Case # 91032902 applies

YES NO N/A

b. Med Water

YES NO N/A

c. Low Soil

YES NO N/A

d. Med Soil

YES NO N/A

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 - Blank Spike

Soils

0 out of 12

NA out of 12

YES NO N/A

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

Water - Blank Spike

Soils

0 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.

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.

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.)

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 QC 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
- 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? | <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"/> |
| 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 DDT? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| - 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 DDT and Endrin breakdown exceeded 20%? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| ACTION: | | | |
| a. If DDT breakdown is greater than 20% on quantitation column beginning with the samples following the last <u>in control</u> 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 <u>in control</u> 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 <u>in control</u> 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 DDT if they are quantified from a 3-point calibration curve. | | | |
| | <i>Only DDT >10% in confirmation column - no impact</i> | | |
| 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"/> |
| 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. | | | |
| | <i>Packed Columns
1% of Conf.</i> | | |
| 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"/> |
| 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"/> |
| 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"/> |
| ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions". | | | |
| 8.3 Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 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 checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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

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.

Highest %D in primary = 4.6% excellent!

9.0 Pesticide/PCB Identification

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

No positive hits in any sample

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 toxaphens 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".

One very small confirmed hit for Dieldrin in Sample 70-001-M001 well below CRQL.

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

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".

No dilutions or soils

CRQLs Adjusted for volume

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.

*Not clearly
identified*

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. 9103L 904 SDG No. _____ LABORATORY ^{Roy F. Weston} Gulf Coast SITE ^{Naval Weapons Station} 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: 6/19/1991

Verified By: [Signature] Date: 6/19/1991

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.

7 water samples

Collected : 3/12/91 from COC

Extracted : 3/18/91 from Extr. Record

Analyzed : 3/31/91 - 4/3/91

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 identified - one minor "Aldrin" peak in primary - not confirmed - very clean blank - no other peaks within retention time windows

B) Field or rinse blank contamination

No identified, associated field blank

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.

*Initial
3/31/91 Instr. 07*

Endrin - EVALB

(pk. height) CDS 6/19/91
$$CF = \frac{48087}{29083} / (0.01560 \text{ ng}/\mu\text{L})(3 \mu\text{L})$$

$$= 621,431.62 \checkmark$$

Lab value = 621432

%RSD Endrin

$$\bar{x} = 648205.3$$

$$sd = 42869.42$$

$$\%RSD = 6.6135 \checkmark$$

Lab value = 6.6

%RSD for DDT > 10% for confirmation - no impact

*Continuing
IND B 4/1/91 18:37*

(pk. height)
$$CF \text{ Endrin} = \frac{50203}{50203} / (0.0255 \text{ ng}/\mu\text{L})(3 \mu\text{L})$$

$$= 656248.366$$

Lab value = 656248

$$\text{Endrin } \%D = \frac{628614 - 656248}{628614} \times 100 = -4.396$$

Lab value = 4.4

Magnitude is correct - direction of difference (minus) is not reported

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 samples had DBC recoveries within QC limits. Sample 10-007-M001 had somewhat low surrogate recovery (26%) and also contained an off scale peak in both primary and confirmation chromatograms outside of all target compound retention time windows.

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 targeted compounds confirmed above the CRQLs in any sample. Sample 10-001-M001 had a very small confirmed hit for Dieldrin well below the CRQL.

No GC/MS confirmation 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 MS/MSD was included with the data package. The reviewer assumes that the MS/MSD reported with RFW Case 9103L902 may be applied to these samples.

A blank spike and blank spike duplicate were extracted and analyzed with these samples. The BS/BSD exhibited good recoveries between 70-112%, and good RPDs between 0-11%.

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent

12. CONTRACT PROBLEMS NON-COMPLIANCE:

None

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.

*No re-extraction or re-analysis
All undiluted (& only) Form Is to be used
for reporting CRQLs without qualification.*

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent!

*This reviewer has seldom seen performance
and packaging this good for Post/PCBs.*

*Refreshing. 6/19/91
CDS*

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 91032904

LABORATORY Roy F. Weston - Gulf Coast

SDG NO. _____

DATA USER _____

SOW 2/88

REVIEW COMPLETION DATE 6/19/91

NO. OF SAMPLES 7 WATER _____ SOIL _____ OTHER _____

REVIEWER ESD ESAT OTHER, CONTRACT/CONTRACTOR _____

	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: _____

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

SOP NO: HW-6
Date: February 1989

Type of Review: 2/88 CLP Pest/PCB Region II SOP Info: 6/19/91

Case #: 9103L904

Project: Naval Weapons Station/Earle - Colts Neck, NJ

Lab Name: Rox F. Weston - Gulf Coast

Reviewer's Initials: Stanley D. Spillars CPS

Number of Samples: 7 (waters)

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)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	7	0/140
PCB (7)								
TCDD (1)								

Analytes Estimated due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	7	0/140
PCB (7)								
TCDD (1)								

CONVERSATION RECORD Time: 5pm Date: 6/17/91 Proj ct: Naval Weapons Station - Earle - Colts Neck, NJ

Telephone: Incoming [] Outgoing [X] Conference: [] Location:

Person(s) Contacted: Linda Mackley Organization: Roy F. Weston - Gulf Coast Lab Address: Phone: 708-534-5200

SUBJECT Request for Standards Concentrations information

PRIMARY Requested EVAL & IND concentrations used for RFW Lot # 9103L902 & 90103L904 Also request concentrations of spiking mixtures.

EVAL & IND available immediately (see Fax 17:25 6/17) Spiking information to be faxed 6/18/91

Information or Follow-up Required: Spiking Concentrations to be faxed tomorrow

DOCUMENTED BY: Chris Scarpellino Signature Date 6/17/91

EVAL Mix Concentrations

Component	EVALA conc. (ng/uL)	EVALB conc. (ng/uL)	EVALC conc. (ng/uL)
ALDRIN	0.00236	0.01180	0.02360
ENDRIN	0.00312	0.01560	0.03120
4,4'-DDT	0.00670	0.03350	0.06700
DBC	0.01164	0.05820	0.11640

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To	Chris Scarpellino	From	Linda Mackley
Co.	Heartland ESI	Co.	WESTON/GULF COAST
Dept.		Phone #	(708) 534-5200
Fax #	(314) 278-8232	Fax #	(708) 534-5211

STANDARD CONCENTRATION SUMMARY

COMPOUND	NG/UL	UL INJECTED	TOTAL NG INJECTED
ALPHA-BHC	0.0050	3.0	0.0150
GAMMA-BHC	0.0101	3.0	0.0303
BETA-BHC	0.0255	3.0	0.0765
HEPTACHLOR	0.0119	3.0	0.0357
DELTA-BHC	0.0101	3.0	0.0303
ALDRIN	0.0101	3.0	0.0303
HEPT. EPOXIDE	0.0112	3.0	0.0336
G. CHLORDANE	0.0100	3.0	0.0300
A. CHLORDANE	0.0100	3.0	0.0300
ENDOSULFAN I	0.0164	3.0	0.0492
4,4'-DDE	0.0105	3.0	0.0315
DIELDRIN	0.0157	3.0	0.0471
ENDRIN	0.0255	3.0	0.0765
4,4'-DDD	0.0254	3.0	0.0762
ENDOSULFAN II	0.0208	3.0	0.0624
4,4'-DDT	0.0344	3.0	0.1032
ENDRIN ALDEHYDE	0.0314	3.0	0.0942
ENDO. SULFATE	0.0450	3.0	0.1350
DBC	0.0582	3.0	0.1746
ENDRIN KETONE	0.0283	3.0	0.0849
METHOXYCHLOR	0.2025	3.0	0.6075
AROCLOR 1016	0.5280	3.0	1.5840
AROCLOR 1221	0.5090	3.0	1.5270
AROCLOR 1232	0.5090	3.0	1.5270
AROCLOR 1242	0.5130	3.0	1.5390
AROCLOR 1248	0.5690	3.0	1.7070
AROCLOR 1254	0.5220	3.0	1.5660
AROCLOR 1260	0.5320	3.0	1.5960
TOXAPHENE	1.0200	3.0	3.0600
** ALDRIN IN INDB	0.0101	3.0	0.0303
** DBC IN INDB	0.0582	3.0	0.1746

Pesticide Spike Concentrations

COMPOUND	UG/ML
gamma-BHC (Lindane)	0.101
Heptachlor	0.101
Aldrin	0.100
Dieldrin	0.253
Endrin	0.268
4,4'-DDT	0.256

Chris,

6-18-91

These are the concentrations of our spike compounds. If you have any questions please give me a call.

Linda Mackley
Weston / Gulf Coast Labs
708 534-5200

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To Chris Scarpellino	From Linda Mackley	
Co. Heartland EST	Co. Weston / Gulf Coast	
Dept.	Phone # 708 534-5200	
Fax # (314) 278-8232	Fax # 708 534- 5200 5211	