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NWS EARLE
5090.3a

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 21, 1991. There were three (3) water samples and 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)

Field ID	Lab ID
10-004-T001	9103L043-001
07-001-T001	9103L043-003
07-001-T001MS	9103L043-003MS
07-001-T001MSD	9103L043-003MSD
07-007-T001	9103L043-004

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 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

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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 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 samples were extracted eleven days after collection but nine days after VTSR, as per CLP. Because of this and the ambiguities associated with soil holding times, the reviewer chooses not to qualify the results based on extraction hold time. All samples were analyzed within the analysis hold time.

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 both the primary and confirmation analyses. 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. Several of the primary continuing calibration standards run well after the samples in this data package had Methoxychlor and Endrin calibration factors 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.

Surrogate Recoveries

The surrogate recovery for Sample 07-007-T001 was below the lower QC limit. The sample chromatogram was relatively free of interfering peaks or potential positive hits. The reviewer chooses not to qualify the sample detection limits based on the low surrogate recovery. The relatively high percent moisture (21%) may have contributed to the low recovery.

Matrix Spike/Matrix Spike Duplicate

All MS/MSD and Blank Spike/Blank Spike Duplicate (BS/BSD) percent recoveries and %RPDs were within QC limits. 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 compound were confirmed in any of the samples above or near the reported detection limits. No significant baseline elevations or interferences were noted.

Overall Assessment

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

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SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
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

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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.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-004-T001

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

Client: Naval Weapons Station

Matrix: SOIL

Lab Sample ID: 9103L043-001

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: 04219107.40

Level: (low/med) LOW

Date Received: 03/22/91

% Moisture: not dec. 12 dec.

Date Extracted: 04/01/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/22/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	9.1	U
319-85-7	Beta-BHC	9.1	U
319-86-8	Delta-BHC	9.1	U
58-89-9	gamma-BHC (Lindane)	9.1	U
76-44-8	Heptachlor	9.1	U
309-00-2	Aldrin	9.1	U
1024-57-3	Heptachlor epoxide	9.1	U
959-98-8	Endosulfan I	9.1	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	91	U
53494-70-5	Endrin ketone	18	U
5103-71-9	alpha-Chlordane	91	U
5103-74-2	gamma-Chlordane	91	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	91	U
11104-28-2	Aroclor-1221	91	U
11141-16-5	Aroclor-1232	91	U
53469-21-9	Aroclor-1242	91	U
12672-29-6	Aroclor-1248	91	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	180	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-001-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L043-003

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 04219107.41

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. 10 dec. Date Extracted: 04/01/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/22/91

GPC Cleanup: (Y/N) Y pH: 7.0 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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-007-T001

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

Client: Naval Weapons Station

Matrix: SOIL

Lab Sample ID: 9103L043-004

Sample wt/vol: 30.8 (g/mL) G

Lab File ID: 04219107.45

Level: (low/med) LOW

Date Received: 03/22/91

% Moisture: not dec. 21 dec.

Date Extracted: 04/01/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 04/22/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	9.9	U
319-85-7	Beta-BHC	9.9	U
319-86-8	Delta-BHC	9.9	U
58-89-9	gamma-BHC (Lindane)	9.9	U
76-44-8	Heptachlor	9.9	U
309-00-2	Aldrin	9.9	U
1024-57-3	Heptachlor epoxide	9.9	U
959-98-8	Endosulfan I	9.9	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'-DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
72-43-5	Methoxychlor	99	U
53494-70-5	Endrin ketone	20	U
5103-71-9	alpha-Chlordane	99	U
5103-74-2	gamma-Chlordane	99	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	99	U
11104-28-2	Aroclor-1221	99	U
11141-16-5	Aroclor-1232	99	U
53469-21-9	Aroclor-1242	99	U
12672-29-6	Aroclor-1248	99	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW# 91034043

LAB: Roy F. Weston - Gulf Coast

SITE: NWS/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 BNA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?		✓
BNA data?		✓
Pesticide/PCB data?	✓	

ACTION: Complete corresponding parts of checklist.

	YES	NO	N/A

PART C: PESTICIDE/PCB ANALYSES

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.

Collected: 3/21/91
Extracted: 4/1/91 > 11
Analyzed: 4/22/91

CLP = 10 days VTSR

~~still 1 day out~~ ~~quality~~ CDS 7/17/91

Received by lab 3/23

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	[___]	___	[✓]

	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?	[✓]	___	___
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) 07-001-T001

	YES	NO	N/A
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
NA out of 12	0 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	Soils
NA out of 6	0 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)

	YES	NO	N/A
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.

	YES	NO	N/A
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 Not Required [✓] ___ ___

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?		[✓]	
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?		[✓]	
- 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?	[ ]	[✓]	___

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.

DDT for both 1° + Conf. – Calibration Curves Supplied

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]) ? Packed	[✓]	___	___

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.

8.0 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".

8.3 Is DDT 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?	[✓]	___	___

	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".			
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? slightly	[ ]	✓	
ACTION: If no, flag all associated positive results "J". Use professional judgement to determine whether or not to flag non-detects. not increased sensitivity — 1° – Methoxychlor & Endrin; Cont. – Endrin coelutes none out			
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
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? MS/MSDs	___	[✓]	___
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
12.0 Field Duplicates			
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.

ATTACHMENT 1
SOP NO. HW-6

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TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. RFW# 9103L043 SDG No._____ LABORATORY R.F. Weston Gulf Coast SITE NWS/Earle

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: _____ Date: 7/16/1991

Verified By: _____ Date: 7/19/1991

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.

All samples Extracted 10 days after sampling
but within 10 days of VTSR (3/23/91)
No qualification — esp. for soils

ATTACHMENT 1
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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 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 confirmed positive hits in method blank

B) Field or rinse blank contamination

None identified for this fraction

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 dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

DDT exceeded 10% RSD for both the primary and confirmation analyses. — lab supplied Calibration Curves — no positive hits in samples —

Methoxychlor + Endrin exceeded 15%D in primary analysis CCSs — slightly — no positives — increased sensitivity — no qualification required

Conf. CCSs all < 20%

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.

Surrogate Recovery for Sample 07-007-T001 below lower recovery limit.

No apparent interferences — fairly high sample % Moisture (21%)

Possible matrix effect

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 positive hits reported for samples.
MS/MSD peaks fall within RTWs.
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.

MS/MSD & BS/BSD

All recoveries and RPDs within QC limits.

ATTACHMENT 1
SOP NO. HW-6

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DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Very Good

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.

One per sample
none-extracts, re-analysis, only dilution 1:5
straight sample not reported

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Very Good.

DPO [ ] ACTION [ ] FYI Region _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO RFW#9103L043 LABORATORY Roy F. Weston - Gulf Coast

SDG NO. _____ DATA USER _____

SOW 2/88 REVIEW COMPLETION DATE 7/17/91

NO. OF SAMPLES _____ WATER 3 SOIL _____ OTHER

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR Heartland ESI

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

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: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: EPA Region II - CLP (3/90 SOP) Date: 7/17/91

Case #: 91031L043

Project: NWS/Earle - Colts Neck, NJ

Lab Name: Roy F. Weston - Gulf Coast

Reviewer's Initials: [signature] CDS

Number of Samples: 3

00029

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	3	0/60
PCB (7)	0	0	0	0	0	0	3	0/21
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	3	0/60
PCB (7)	0	0	0	0	0	0	3	0/21
TCDD (1)								

CDS 7/17/91

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 29, 1991. There was one (1) water sample which was analyzed by the Roy F. Weston Gulf Coast Laboratory included in this analytical batch.

Samples Reviewed

Water Samples (all)

Field ID	Lab ID
MW10-006-M001	9103L090-001

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 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

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

The sample was extracted and analyzed within the 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 both the primary and confirmation analyses. 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. Several of the primary continuing calibration standards run well after the samples in this data package had DDT and Methoxychlor calibration factors 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.

Surrogate Recoveries

All surrogate recoveries were within the QC limits.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was prepared or analyzed with this one sample. The associated Blank Spike/Blank Spike Duplicate (BS/BSD) percent recoveries and %RPDs were all within QC limits. 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 compound were confirmed in the sample above or near the reported detection limits. No significant baseline elevations or interferences were noted.

Overall Assessment

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

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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.

HEARTLAND ENVIRONMENTAL SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

MW10-006-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L090-001

Sample wt/vol: 930 (g/mL) ML Lab File ID: 04039107.65

Level: (low/med) LOW Date Received: 03/29/91

% Moisture: not dec. _____ dec. Date Extracted: 04/01/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/05/91

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

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

CAS NO.	COMPOUND		
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

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW# 91032090-

LAB: Roy F. Weston - Gulf Coast

SITE: NWS/Earle - Colts Neck, NJ

	YES	NO	N/A
1.0 Data Completeness and Deliverables			
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 BNA analyses and Part C for Pesticide/PCBs.			
Does this package contain:			
VOA data?		✓	
BNA data?		✓	
Pesticide/PCB data?	✓		

ACTION: Complete corresponding parts of checklist.

	YES	NO	N/A
PART C: PESTICIDE/PCB ANALYSES			
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.	Collected: 3/29/91 Extracted: 4/1/91 Analyzed: 4/5/91		
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	[___]	___	✓

	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?	[ ]		✓
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) No MS/MSD Blank Spike/Blank Spike 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? BS/BSD

Water	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	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)

	YES	NO	N/A
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.

	YES	NO	N/A
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 [✓] ___ ___

not included

Not required by CLP

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?		[✓]	
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?		[✓]	
- 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?	[✓]		
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]) ?	[✓]		
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.			

8.0 Pesticide/PCB Standards Summary

	YES	NO	N/A
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".			
8.3 Is DDT 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?	[✓]		

	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".			
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.		Some – 1°-DDT & Methoxychlor but well after sample of interest in sequence	
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
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?	minor ✓	[___]	___
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.			

Water Vol. adjusted no dilutions

	YES	NO	N/A
12.0 Field Duplicates			
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.

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 91031090 SDG No. _____ LABORATORY R.F. Weston Gulf Coast SITE NWS/Earle 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: 7/16/1991

Verified By: [signature] Date: 7/19/1991

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.

All holding times met.

ATTACHMENT 1
SOP NO. HW-6

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 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 positive hits

B) Field or rinse blank contamination

None identified

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 dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

All %RSDs <10%

DDT & Methoxychlor %Ds >15% for several Continuing Calibration Standards – analyzed much later than sample of interest
– surrounding stds. within limits

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 within limits.

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 compounds reported

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 reported with this sample.

BS/BSD reported — all %Rec. & %RSDs within CLP limits —

NEESA - requires lab to set its own limits

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Very Good.

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.

Only one

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Very good.

DPO [ ] ACTION [ ] FYI Region _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO RFW #91031090 LABORATORY Roy F. Weston - Gulf Coast

SDG NO. _____ DATA USER _____

SOW 2/88 REVIEW COMPLETION DATE 7/16/91

NO. OF SAMPLES 1 WATER _____ SOIL _____ OTHER _____

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR Heartland ESI

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

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: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: Region II – (3/90 SOP) Date: 7/16/91 Case #:

Project: NWS/Earle – Colts Neck, NJ Lab Name: Roy F. Weston – Gulf Coast

Reviewer's Initials: CDS Number of Samples: 1

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	1	0/20
PCB (7)	0	0	0	0	0	0	1	0/7
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

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

000027

HEARTLAND ENVIRONMENTAL SERVICES, INC.
P.O. BOX 163 ST. PETERS MO 63376
(314) 278-8232

July 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 18, 19 & 20, 1991. There were twenty-two (22) water samples and two (2) MS/MSDs which were analyzed by the Roy F. Weston - Gulf Coast Laboratory included in this analytical batch.

Samples Reviewed
Water Samples (All)

Field ID	Lab ID	Field ID	Lab ID
19-001-M001	9103L008-001	04-002-M101	9103L008-011
19-001-M001MS	9103L008-001MS	04-005-M001	9103L008-012
19-001-M001MSD	9103L008-001MSD	04-006-M001	9103L008-013
19-002-M001	9103L008-002	03-001-M001	9103L008-015
19-003-M001	9103L008-003	03-002-M001	9103L008-016
19-003-M101	9103L008-004	03-003-M001	9103L008-017
19-003-M201	9103L008-005	03-004-M001	9103L008-018
19-004-M001	9103L008-006	03-005-M001	9103L008-019
19-005-M001	9103L008-007	03-006-M001	9103L008-020
19-006-M001	9103L008-008	05-007-M001	9103L008-021
04-001-M001	9103L008-009	05-007-M001MS	9103L008-021MS
04-002-M001	9103L008-010	05-007-M001MSD	9103L008-021MSD

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 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

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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 samples were extracted and analyzed within holding times.

GC Instrument Performance

The peaks resulting from all standards analyses for all five sequences included in this package were within the laboratory provided retention time windows for all target analytes. 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 DDT was greater than 10% (14.7) in the initial calibration for the quantitation sequence on Instrument 07, 4/21/91. The laboratory provided a calibration curve for the compound, and used it to quantify DDT results for associated samples.

Continuing Calibrations

Endrin and Methoxychlor percent differences (%Ds) slightly exceeded 15% for some primary sequence continuing calibration standards (CCSs). No positive hits were identified in the associated samples for these compounds. The %Ds were due to increased instrument sensitivity and did not adversely affect the reported detection limits. No qualifications were required.

Blanks

No target compounds were detected in either of the two water method blanks. No field blanks were identified for these sample batches.

Surrogate Recoveries

All DBC surrogate recoveries were within the required QC advisory limits.

Matrix Spike/Matrix Spike Duplicate

Two sets of MS/MSDs were included in this analytical batch, corresponding to the two extraction batches included. Also included in the package were two sets of water Blank Spikes (BSs) and Blank Spike Duplicates (BSDs), one each associated with each extraction batch. All % Recoveries were within control limits. All of the %RSDs for one MS/MSD set were outside QC limits. No interferences are indicated on the associated chromatograms. The consistently different recoveries are probably due to a spiking error or extraction differences. The surrogate recoveries for the two spike samples follow the same pattern as the spike recoveries. All other % RPDs were within QC limits.

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 03-004-M001 was reported to contain Aldrin, alpha- and gamma-Chlordane below the CRQLs. Review of the sample chromatograms indicated that all peaks are probably associated with Technical Chlordane.

Specific Findings

1. All positive results reported for sample 03-004-M001 are qualified because the reported compounds are probably associated with Technical Chlordane. The laboratory did not analyze a standard to quantify this compound.

Overall Assessment

The overall quality of the data package was excellent. The reported results for the samples are accepted with the qualification listed above.

HEARTLAND ENVIRONMENTAL SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
03-004-M001	Aldrin, alpha- & gamma- Chlordane	+	J	1

* 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

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

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.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-001-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-001

Sample wt/vol: 980 (g/mL) ML Lab File ID: 04219107.50

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/22/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-002-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-002

Sample wt/vol: 900 (g/mL) ML Lab File ID: 04219107.53

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/22/91

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

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

CAS NO.	COMPOUND		
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	0.022	J
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	0.14	
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-003-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-003

Sample wt/vol: 940 (g/mL) ML Lab File ID: 04219107.54

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/22/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-003-M101

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-004

Sample wt/vol: 920 (g/mL) ML Lab File ID: 04219107.56

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/22/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-003-M201

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-005

Sample wt/vol: 870 (g/mL) ML Lab File ID: 04219107.57

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/22/91

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

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

CAS NO.	COMPOUND		
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

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1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-004-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-006

Sample wt/vol: 940 (g/mL) ML Lab File ID: 04219107.58

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/22/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-005-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-007

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04219107.59

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	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	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

19-006-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-008

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04219107.60

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.010	J
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	0.082	J
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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CLIENT SAMPLE NO.

04-001-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-009

Sample wt/vol: 950 (g/mL) ML Lab File ID: 04219107.62

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
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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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-002-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-010

Sample wt/vol: 990 (g/mL) ML Lab File ID: 04219107.63

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	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	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-002-M101

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-011

Sample wt/vol: 990 (g/mL) ML Lab File ID: 04219107.64

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	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	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-005-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-012

Sample wt/vol: 900 (g/mL) ML Lab File ID: 04219107.65

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-006-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-013

Sample wt/vol: 930 (g/mL) ML Lab File ID: 04219107.66

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-001-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-015

Sample wt/vol: 850 (g/mL) ML Lab File ID: 04219107.69

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.059	U
319-85-7	Beta-BHC	0.059	U
319-86-8	Delta-BHC	0.059	U
58-89-9	gamma-BHC (Lindane)	0.059	U
76-44-8	Heptachlor	0.059	U
309-00-2	Aldrin	0.059	U
1024-57-3	Heptachlor epoxide	0.059	U
959-98-8	Endosulfan I	0.059	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	0.59	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.59	U
5103-74-2	gamma-Chlordane	0.59	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.59	U
11104-28-2	Aroclor-1221	0.59	U
11141-16-5	Aroclor-1232	0.59	U
53469-21-9	Aroclor-1242	0.59	U
12672-29-6	Aroclor-1248	0.59	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

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CLIENT SAMPLE NO.

03-002-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-016

Sample wt/vol: 770 (g/mL) ML Lab File ID: 04219107.70

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. ____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.065	U
319-85-7	Beta-BHC	0.065	U
319-86-8	Delta-BHC	0.065	U
58-89-9	gamma-BHC (Lindane)	0.065	U
76-44-8	Heptachlor	0.065	U
309-00-2	Aldrin	0.065	U
1024-57-3	Heptachlor epoxide	0.065	U
959-98-8	Endosulfan I	0.065	U
60-57-1	Dieldrin	0.13	U
72-55-9	4,4'-DDE	0.13	U
72-20-8	Endrin	0.13	U
33213-65-9	Endosulfan II	0.13	U
72-54-8	4,4'-DDD	0.13	U
1031-07-8	Endosulfan sulfate	0.13	U
50-29-3	4,4'-DDT	0.13	U
72-43-5	Methoxychlor	0.65	U
53494-70-5	Endrin ketone	0.13	U
5103-71-9	alpha-Chlordane	0.65	U
5103-74-2	gamma-Chlordane	0.65	U
8001-35-2	Toxaphene	1.3	U
12674-11-2	Aroclor-1016	0.65	U
11104-28-2	Aroclor-1221	0.65	U
11141-16-5	Aroclor-1232	0.65	U
53469-21-9	Aroclor-1242	0.65	U
12672-29-6	Aroclor-1248	0.65	U
11097-69-1	Aroclor-1254	1.3	U
11096-82-5	Aroclor-1260	1.3	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-003-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-017

Sample wt/vol: 890 (g/mL) ML Lab File ID: 04219107.71

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-004-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-018

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04219107.72

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.26	U
319-85-7	Beta-BHC	0.26	U
319-86-8	Delta-BHC	0.26	U
58-89-9	gamma-BHC (Lindane)	0.26	U
76-44-8	Heptachlor	0.26	U
309-00-2	Aldrin	0.031	J
1024-57-3	Heptachlor epoxide	0.26	U
959-98-8	Endosulfan I	0.26	U
60-57-1	Dieldrin	0.52	U
72-55-9	4,4'-DDE	0.52	U
72-20-8	Endrin	0.52	U
33213-65-9	Endosulfan II	0.52	U
72-54-8	4,4'-DDD	0.52	U
1031-07-8	Endosulfan sulfate	0.52	U
50-29-3	4,4'-DDT	0.52	U
72-43-5	Methoxychlor	2.6	U
53494-70-5	Endrin ketone	0.52	U
5103-71-9	alpha-Chlordane	0.50	J
5103-74-2	gamma-Chlordane	0.26	J
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	2.6	U
11104-28-2	Aroclor-1221	2.6	U
11141-16-5	Aroclor-1232	2.6	U
53469-21-9	Aroclor-1242	2.6	U
12672-29-6	Aroclor-1248	2.6	U
11097-69-1	Aroclor-1254	5.2	U
11096-82-5	Aroclor-1260	5.2	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-005-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-019

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04219107.74

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.021	J
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	0.093	J
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-006-M001

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

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L008-020

Sample wt/vol: 840 (g/mL) ML

Lab File ID: 04219107.75

Level: (low/med) LOW

Date Received: 03/20/91

% Moisture: not dec. _____ dec.

Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/23/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.060	U
319-85-7	Beta-BHC	0.060	U
319-86-8	Delta-BHC	0.060	U
58-89-9	gamma-BHC (Lindane)	0.060	U
76-44-8	Heptachlor	0.060	U
309-00-2	Aldrin	0.060	U
1024-57-3	Heptachlor epoxide	0.060	U
959-98-8	Endosulfan I	0.060	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	0.60	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.60	U
5103-74-2	gamma-Chlordane	0.60	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.60	U
11104-28-2	Aroclor-1221	0.60	U
11141-16-5	Aroclor-1232	0.60	U
53469-21-9	Aroclor-1242	0.60	U
12672-29-6	Aroclor-1248	0.60	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-007-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-021

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 04219107.76

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. ____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	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	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-007-M201

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

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L008-022

Sample wt/vol: 930 (g/mL) ML

Lab File ID: 04119107.63

Level: (low/med) LOW

Date Received: 03/20/91

% Moisture: not dec. _____ dec.

Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/13/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-002-M201

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L008-023

Sample wt/vol: 890 (g/mL) ML Lab File ID: 04119107.66

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
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

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW#9103L008

LAB: Roy F. Weston - Gulf Coast

SITE: NWS/Earle Colts Neck, NJ

	YES	NO	N/A
1.0 Data Completeness and Deliverables			
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 BNA analyses and Part C for Pesticide/PCBs.			
Does this package contain:			
VOA data?		✓	
BNA 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.	Collected: 3/18-20/91 Extracted: 3/23/91 Analyzed: 4/13/91 & 4/22-23/91		
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	[ ]		✓

	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?	[ ]		✓
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)

	YES	NO	N/A
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
0 out of ~~12~~ 24 CDS 7/16/91	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	Soils
6 out of ~~8~~ 12 CDS 7/16/91	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? [✓] ✓ ___

MS/MSD apparently not counted as "samples" by lab — 22 samples associated with one blank

OK CDS 7/16/91

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.)

No Field Blank or Dup identified on C-o-C

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 (Not Required) [✓] [ ] [ ]

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?		[✓]	
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?		[✓]	
- 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?	[ ]	[✓]	

DDT %RSD = 13.4 on Instr. 07 4/21/91 - Calibration Curve Supplied by lab

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]) ?~~ Packed	[✓]		

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".

8.3 Is DDT 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?	[✓]		

	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".			
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.			

1° - Endrin 4/13/91 14:29
- Methoxychlor 4/22/91 18:31
- Endrin 4/23/91 01:47
4/23/91 18:48
Conf. - all %Dr < 20%

9.0 Pesticide/PCB Identification

	YES	NO	N/A
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".			

Not required for concentrations

Sample 03-004-M001 possible Tech. Chlordane — lab reported Aldrin + Alpha & Gamma-Chlordane below CRQL

	YES	NO	N/A
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.			

No soils
No dilutions
CRQLs adjusted for sample volume 770 ml to 1000 ml (most 900+)

11.0 Chromatogram Quality			
11.1 Were baselines stable?	[✓]	___	___
11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen? consistent but small interference peaks	___	[✓]	___
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
12.0 Field Duplicates			
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.

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. RFW# 91031L008 SDG No. _____ LABORATORY R.F. Weston Gulf Coast SITE NWS/Earle 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: _____ Date: 7/16/1991

Verified By: _____ Date: 7/19/1991

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.

All samples extracted & analyzed within required hold times

ATTACHMENT 1
SOP NO. HW-6

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 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

2 method blanks – one with each extraction group
No confirmed target compounds.
Clean

B) Field or rinse blank contamination

None identified

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 dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

DDT %RSD = 13.4 on primary analysis on Instrument 07, 4/21/91 – Calibration Curve supplied and utilized by laboratory for quantitation.

1° – Endrin exceeded 15%D slightly for ~~two~~ three continuing cal. stds. (4/13/91, 14:29 ; 4/23/91, 01:47, 7/16/91 + 4/23/91, 18:48)
– Methoxychlor slightly exceeded 15%D for one std. 4/22/91 18:31

Cont – all %Ds < 20%

No positive hits in associated samples for Endrin or Methoxychlor – %Ds due to increase in instrument sensitivity – no impact on reported DLs.

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 DBC surrogate recoveries within QC limits.

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 RTs for detected compounds are within lab reported RTWs.

No GC/MS confirmation required for concentrations.

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.

Two MS/MSDs were reported, one with each extraction batch. All % recoveries were within QC limits. The %RPDs for the MS/MSD of 03-007-M201 were all outside QC limits. The sample, MS & MSD chromatograms don't indicate any interferences, MSD just has smaller peaks. Probably associated with inconsistent spiking or extraction procedures. Surrogate recoveries for MS/MSD are consistent with spike recoveries.

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent

Sample 03-004-M001 probably contains technical chlordane — lab did not analyze std. — reported Aldrin, Alpha- + Gamma-chlordane below CRQLs

12. CONTRACT PROBLEMS____NON-COMPLIANCE: Qualify

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.

— One each sample, no dilutions

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent

DPO [ ] ACTION [ ] FYI Region _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. RFW#91032L008 LABORATORY Roy F. Weston - Gulf Coast

SDG NO. _____ DATA USER _____

SOW 2/88 REVIEW COMPLETION DATE 7/16/91

NO. OF SAMPLES 22 WATER _____ SOIL _____ OTHER

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR Heartland ESI

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

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: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

000048

Type of Review: Region II CLP - 3/90 SOP Date: 7/16/91 Case #: 91031L008

Project: NWS/Earle - Colts Neck, NJ Lab Name: Rex E. Weston - Gulf Coast

Reviewer's Initials: Natasha D. Sampline (CDS) Number of Samples: 22 + 2 MS/MSDs

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	22	0/440
PCB (7)	0	0	0	0	0	0	22	0/154
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	3	0	22	3/440
PCB (7)	0	0	0	0	0	0	22	0/154
TCDD (1)								

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

July 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 18, 1991. There was one (1) water sample and eight soil samples which were analyzed by the Roy F. Weston - Gulf Coast Laboratory included in this analytical batch.

Samples Reviewed
Water Sample

Field ID	Lab ID
10-004-T201	9103L007-009
Soil Samples	
03-004-T001	9103L007-001
03-007-T001	9103L007-002
04-002-T001	9103L007-003
04-002-T001MS	9103L007-003MS
04-002-T001MSD	9103L007-003MSD
04-003-T001	9103L007-004
05-001-T001	9103L007-006
05-001-T101	9103L007-007
05-003-T001	9103L007-008
03-TP03-001	9103L007-010

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 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

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

Sample 03-TP03-001 was extracted one day outside the seven-day from collection holding time.

1. All results for Sample 03-TP03-001 are qualified because it was extracted outside of the required hold time. This sample was also analyzed at a 1:10 dilution yielding no positive hits and with no supporting undiluted results reported.

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% (14.7) in the initial calibration for the quantitation sequence on Instrument 07, 4/21/91. The two samples in this package associated with this standard, 05-001-T101 and 05-003-T001, contained no positive hits for DDT.

Continuing Calibrations

Endrin exceeded 15% (D) in most (five) continuing calibration standards (CCSs) in the primary sequence on Instrument 07, 4/11-13/91. The differences were due to slightly increased instrument sensitivity, as compared to the initial calibration, and cause no

impact on the reported detection limits reported for this compound

Continuing Calibrations - continued

in the assocaited samples. Similarly, Methoxychlor exceeded 15% D in two CCSs because of increased sensitivity with no positive hits in associated samples. All CCS peaks were within the laboratory established retention time windows.

Blanks

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

Surrogate Recoveries

All surrogate recoveries were within the required control limits.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was analyzed with the one water sample included in this batch. A water Blank Spike (BS) and Blank Spike Duplicate (BSD) were reported with this sample. All %Recoveries and %RPDs were excellent.

The soil MS/MSD reported with this batch showed some imprecision, with one %RPD above the limit and all RPDs fairly high. All recoveries were within limits but all were consistently lower for the MSD. This lack of precision may be due to sample inhomogeneity or inconsistent spiking. The laboratory reported good results from the analysis of a Blank Spike and Blank Spike Duplicate with this batch of samples, with good recoveries and very low % RPDs. 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 03-004-T001 appears to contain technical chlordane, with good positive hits for alpha- and gamma- chlordane. Other positive hits in this sample may be associated with Technical Chlordane, but the laboratory did not analyze a standard for it for verification.

Specific Finding

2. All reported psitive results for Sample 03-004-T001 are qualified due to the lack of a Technical Chlordane standard analysis for confirmation. In addition, the sample was diluted 1:10 without the inclusion of the data for the undiluted analysis.

Overall Assessment

The overall quality of the data package was excellent. The reported results for the samples are accepted with the qualification as presented in this report.

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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.

HEARTLAND ENVIRONMENTAL SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
03-TP03-001	All	U	UJ	1
03-004-T001	Dieldrin DDE, DDT alpha- & gamma- Chlordane	+	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 used by Heartland ESI

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-004-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-001

Sample wt/vol: 30.3 (g/mL) G Lab File ID: 04079107.57

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 9 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/09/91

GPC Cleanup: (Y/N) Y pH: 6.0 Dilution Factor: 10.0

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	87	U	
319-85-7	Beta-BHC	87	U	
319-86-8	Delta-BHC	87	U	
58-89-9	gamma-BHC (Lindane)	87	U	
76-44-8	Heptachlor	87	U	
309-00-2	Aldrin	87	U	
1024-57-3	Heptachlor epoxide	87	U	
959-98-8	Endosulfan I	87	U	
60-57-1	Dieldrin	31	J ~~J~~	2
72-55-9	4,4'-DDE	52	J ~~J~~	2
72-20-8	Endrin	170	U	
33213-65-9	Endosulfan II	170	U	
72-54-8	4,4'-DDD	120	J	
1031-07-8	Endosulfan sulfate	170	U	
50-29-3	4,4'-DDT	50	J ~~J~~	2
72-43-5	Methoxychlor	870	U	
53494-70-5	Endrin ketone	170	U	
5103-71-9	alpha-Chlordane	51	J ~~J~~	2
5103-74-2	gamma-Chlordane	35	J ~~J~~	2
8001-35-2	Toxaphene	1700	U	
12674-11-2	Aroclor-1016	870	U	
11104-28-2	Aroclor-1221	870	U	
11141-16-5	Aroclor-1232	870	U	
53469-21-9	Aroclor-1242	870	U	
12672-29-6	Aroclor-1248	870	U	
11097-69-1	Aroclor-1254	1700	U	
11096-82-5	Aroclor-1260	1700	U	

FORM 1 PEST 12/88 Rev.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

03-007-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-002

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 04079107.58

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 16 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/09/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	9.5	U
319-85-7	Beta-BHC	9.5	U
319-86-8	Delta-BHC	9.5	U
58-89-9	gamma-BHC (Lindane)	9.5	U
76-44-8	Heptachlor	9.5	U
309-00-2	Aldrin	9.5	U
1024-57-3	Heptachlor epoxide	9.5	U
959-98-8	Endosulfan I	9.5	U
60-57-1	Dieldrin	19	U
72-55-9	4,4'-DDE	19	U
72-20-8	Endrin	19	U
33213-65-9	Endosulfan II	19	U
72-54-8	4,4'-DDD	19	U
1031-07-8	Endosulfan sulfate	19	U
50-29-3	4,4'-DDT	19	U
72-43-5	Methoxychlor	95	U
53494-70-5	Endrin ketone	19	U
5103-71-9	alpha-Chlordane	95	U
5103-74-2	gamma-Chlordane	95	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	95	U
11104-28-2	Aroclor-1221	95	U
11141-16-5	Aroclor-1232	95	U
53469-21-9	Aroclor-1242	95	U
12672-29-6	Aroclor-1248	95	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-002-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-003

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 04079107.59

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 7 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/09/91

GPC Cleanup: (Y/N) Y pH: 6.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	42	U
319-85-7	Beta-BHC	42	U
319-86-8	Delta-BHC	42	U
58-89-9	gamma-BHC (Lindane)	42	U
76-44-8	Heptachlor	42	U
309-00-2	Aldrin	42	U
1024-57-3	Heptachlor epoxide	42	U
959-98-8	Endosulfan I	42	U
60-57-1	Dieldrin	84	U
72-55-9	4,4'-DDE	84	U
72-20-8	Endrin	84	U
33213-65-9	Endosulfan II	84	U
72-54-8	4,4'-DDD	84	U
1031-07-8	Endosulfan sulfate	84	U
50-29-3	4,4'-DDT	13	J
72-43-5	Methoxychlor	420	U
53494-70-5	Endrin ketone	84	U
5103-71-9	alpha-Chlordane	420	U
5103-74-2	gamma-Chlordane	420	U
8001-35-2	Toxaphene	840	U
12674-11-2	Aroclor-1016	420	U
11104-28-2	Aroclor-1221	420	U
11141-16-5	Aroclor-1232	420	U
53469-21-9	Aroclor-1242	420	U
12672-29-6	Aroclor-1248	420	U
11097-69-1	Aroclor-1254	840	U
11096-82-5	Aroclor-1260	840	U

FORM 1 PEST 12/88 Rev.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

04-003-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-004

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 04119107.69

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 13 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	9.1	U
319-85-7	Beta-BHC	9.1	U
319-86-8	Delta-BHC	9.1	U
58-89-9	gamma-BHC (Lindane)	9.1	U
76-44-8	Heptachlor	9.1	U
309-00-2	Aldrin	9.1	U
1024-57-3	Heptachlor epoxide	9.1	U
959-98-8	Endosulfan I	9.1	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	91	U
53494-70-5	Endrin ketone	18	U
5103-71-9	alpha-Chlordane	91	U
5103-74-2	gamma-Chlordane	91	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	91	U
11104-28-2	Aroclor-1221	91	U
11141-16-5	Aroclor-1232	91	U
53469-21-9	Aroclor-1242	91	U
12672-29-6	Aroclor-1248	91	U
11097-69-1	Aroclor-1254	180	U
11096-82-5	Aroclor-1260	180	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-001-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-006

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 04119107.70

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 18 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/13/91

GPC Cleanup: (Y/N) Y pH: 7.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	48	U
319-85-7	Beta-BHC	48	U
319-86-8	Delta-BHC	48	U
58-89-9	gamma-BHC (Lindane)	48	U
76-44-8	Heptachlor	48	U
309-00-2	Aldrin	48	U
1024-57-3	Heptachlor epoxide	48	U
959-98-8	Endosulfan I	48	U
60-57-1	Dieldrin	96	U
72-55-9	4,4'-DDE	96	U
72-20-8	Endrin	96	U
33213-65-9	Endosulfan II	96	U
72-54-8	4,4'-DDD	96	U
1031-07-8	Endosulfan sulfate	96	U
50-29-3	4,4'-DDT	96	U
72-43-5	Methoxychlor	480	U
53494-70-5	Endrin ketone	96	U
5103-71-9	alpha-Chlordane	480	U
5103-74-2	gamma-Chlordane	480	U
8001-35-2	Toxaphene	960	U
12674-11-2	Aroclor-1016	480	U
11104-28-2	Aroclor-1221	480	U
11141-16-5	Aroclor-1232	480	U
53469-21-9	Aroclor-1242	480	U
12672-29-6	Aroclor-1248	480	U
11097-69-1	Aroclor-1254	960	U
11096-82-5	Aroclor-1260	960	U

FORM 1 PEST 12/88 Rev.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-001-T101

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-007

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 04219107.16

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 19 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/21/91

GPC Cleanup: (Y/N) Y pH: 6.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	49	U
319-85-7	Beta-BHC	49	U
319-86-8	Delta-BHC	49	U
58-89-9	gamma-BHC (Lindane)	49	U
76-44-8	Heptachlor	49	U
309-00-2	Aldrin	49	U
1024-57-3	Heptachlor epoxide	49	U
959-98-8	Endosulfan I	49	U
60-57-1	Dieldrin	98	U
72-55-9	4,4'-DDE	98	U
72-20-8	Endrin	98	U
33213-65-9	Endosulfan II	98	U
72-54-8	4,4'-DDD	98	U
1031-07-8	Endosulfan sulfate	98	U
50-29-3	4,4'-DDT	98	U
72-43-5	Methoxychlor	490	U
53494-70-5	Endrin ketone	98	U
5103-71-9	alpha-Chlordane	490	U
5103-74-2	gamma-Chlordane	490	U
8001-35-2	Toxaphene	980	U
12674-11-2	Aroclor-1016	490	U
11104-28-2	Aroclor-1221	490	U
11141-16-5	Aroclor-1232	490	U
53469-21-9	Aroclor-1242	490	U
12672-29-6	Aroclor-1248	490	U
11097-69-1	Aroclor-1254	980	U
11096-82-5	Aroclor-1260	980	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-003-T001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-008

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 04219107.17

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 22 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/21/91

GPC Cleanup: (Y/N) Y pH: 6.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	51	U
319-85-7	Beta-BHC	51	U
319-86-8	Delta-BHC	51	U
58-89-9	gamma-BHC (Lindane)	51	U
76-44-8	Heptachlor	51	U
309-00-2	Aldrin	51	U
1024-57-3	Heptachlor epoxide	51	U
959-98-8	Endosulfan I	51	U
60-57-1	Dieldrin	100	U
72-55-9	4,4'-DDE	100	U
72-20-8	Endrin	100	U
33213-65-9	Endosulfan II	100	U
72-54-8	4,4'-DDD	11	J
1031-07-8	Endosulfan sulfate	100	U
50-29-3	4,4'-DDT	100	U
72-43-5	Methoxychlor	510	U
53494-70-5	Endrin ketone	100	U
5103-71-9	alpha-Chlordane	510	U
5103-74-2	gamma-Chlordane	510	U
8001-35-2	Toxaphene	1000	U
12674-11-2	Aroclor-1016	510	U
11104-28-2	Aroclor-1221	510	U
11141-16-5	Aroclor-1232	510	U
53469-21-9	Aroclor-1242	510	U
12672-29-6	Aroclor-1248	510	U
11097-69-1	Aroclor-1254	1000	U
11096-82-5	Aroclor-1260	1000	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

10-004-T201

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L007-009

Sample wt/vol: 870 (g/mL) ML Lab File ID: 04119107.62

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. _____ dec. Date Extracted: 03/23/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
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.

03-TP03-001

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

Client: Naval Weapons Station

Matrix: SOIL Lab Sample ID: 9103L007-010

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 04119107.75

Level: (low/med) LOW Date Received: 03/20/91

% Moisture: not dec. 32 dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/13/91

GPC Cleanup: (Y/N) Y pH: 6.0 Dilution Factor: 10.0

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	120	U J
319-85-7	Beta-BHC	120	U J
319-86-8	Delta-BHC	120	U J
58-89-9	gamma-BHC (Lindane)	120	U J
76-44-8	Heptachlor	120	U J
309-00-2	Aldrin	120	U J
1024-57-3	Heptachlor epoxide	120	U J
959-98-8	Endosulfan I	120	U J
60-57-1	Dieldrin	240	U J
72-55-9	4,4'-DDE	240	U J
72-20-8	Endrin	240	U J
33213-65-9	Endosulfan II	240	U J
72-54-8	4,4'-DDD	240	U J
1031-07-8	Endosulfan sulfate	240	U J
50-29-3	4,4'-DDT	240	U J
72-43-5	Methoxychlor	1200	U J
53494-70-5	Endrin ketone	240	U J
5103-71-9	alpha-Chlordane	1200	U J
5103-74-2	gamma-Chlordane	1200	U J
8001-35-2	Toxaphene	2400	U J
12674-11-2	Aroclor-1016	1200	U J
11104-28-2	Aroclor-1221	1200	U J
11141-16-5	Aroclor-1232	1200	U J
53469-21-9	Aroclor-1242	1200	U J
12672-29-6	Aroclor-1248	1200	U J
11097-69-1	Aroclor-1254	2400	U J
11096-82-5	Aroclor-1260	2400	U J

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FORM 1 PEST 12/88 Rev.

PACKAGE COMPLETENESS AND DELIVERABLES

RFW #
CASE NUMBER: 9103L007-001/004, 006/010

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.			
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 BNA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?		✓
BNA 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.	Sample 03-TP03-001 Collected: 3/18/91 Extracted: 3/26/91		
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	[ ]		✓

	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?	[ ]		✓
ACTION: Circle all outliers in red. all w/in QC limits			
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)

	YES	NO	N/A
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 — Blank Spike & BS Duplicate for one water sample	[✓]		
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
0 out of 12 BS/BSD	0 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?			

CPS 7/18/91 **Water** ~~1~~ 0 out of 6

CPS 7/18/91 **Soils** 1 ~~0~~ 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)

	YES	NO	N/A
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.

	YES	NO	N/A
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.) *None identified for Pest/PCB*

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 [✓] ___ ___

no Chlordane Not Required by CLP

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?	___	[✓]	___
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?	___	[✓]	___
- for Endrin?	___	[✓]	___
or if Endrin aldehyde <u>and</u> 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 <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 <u>and</u> 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 <u>and</u> 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 <u>and</u> 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?	[ ]	[✓]	___

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.

Instr. 07 4/21-24/91
DDT % RSD = 14.7
Samples
no positive hits
05-001-T101
05-003-T001

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]) ? packed	[✓]	___	___

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.

8.0 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".

8.3 Is DDT 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?	[✓]	___	___

	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".			
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.			

Endrin out on primary for five cont. cals. – increased sensitivity – no positive hits in samples
Methoxychlor out twice – same

9.0 Pesticide/PCB Identification

	YES	NO	N/A
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".			

Sample 09-004-T001 looks like technical chlordane

	YES	NO	N/A
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.			

Minor rounding errors only

	YES	NO	N/A
12.0 Field Duplicates			
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.

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. RFW # 91031L007 SDG No._____ LABORATORY R.F. Weston Gulf Coast SITE NWS/Earle 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: 7 / 18 / 19 91

Verified By: [signature] Date: 7 / 19 / 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.

Sample 03-TP03-001 was extracted one day outside the seven-day holding time. No confirmed positive hits — diluted 10:1 All detection limits qualified as estimated. Laboratory should have included undiluted analysis. Peak pattern too small to identify, and does not match multi-component standards.

ATTACHMENT 1
SOP NO. HW-6

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 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 confirmed positive hits in either soil or water blank. Very clean.

B) Field or rinse blank contamination

No field blank identified.

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 dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

The %RSD for DDT exceeded 10% (14.7) for the initial calibration of Instrument 07 4/21-24/91. Two samples, 05-001-T101 and 05-003-T001, were associated but contained no positive hits for DDT.

Endrin exceeded 15% D in five cont. cal. stds. in the primary sequence on Intr. 07 4/11-13/91. The differences were due to increased sensitivity indicating no impact on the reported detection limits. Samples associated with those standards did not contain any positive hits for Endrin. Similarly, Methoxychlor exceeded 15%D in two cont. cal. stds. in the same sequence due to increased sensitivity. No positive hits identified in the associated samples.

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 contract QC limits.

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 DBC retention times were within limits for packed columns. All reported target compounds had peaks within the retention time windows on both primary and confirmation analysis. No samples contained target compounds at concentrations >10 ng/uL.

Sample 03-004-T001 appears to contain technical chlordane with good positive hits for alpha- and gamma-chlordane. Other positive hits in this sample may be associated with Technical Chlordane. All reported positive hits are qualified due to lack of Tech. Chlor. std. and unsupported 1:10 dilution.

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.

A Blank Spike and Blank Spike Duplicate were prepared, analyzed & reported with the one water sample in this batch. All % Recoveries & % RPDs were excellent.

An MS/MSD for the soil samples showed some imprecision with one % RPD above the limit and all RPDs fairly high. All recoveries were within limits but they were consistently lower for the MSD. This could be due to sample inhomogeneity or spiking error — BS/BSD also prepared with soils was very precise.

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent

12. CONTRACT PROBLEMS____NON-COMPLIANCE:

1:10 Dilution of Sample 03-TP03-001
was not supported by undiluted analysis 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 for each sample

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent system performance, good package.

DPO [ ] ACTION [ ] FYI Region _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 91031L007 LABORATORY R.F. Weston - Gulf Coast

SDG NO. _____ DATA USER _____

SOW 2/88 REVIEW COMPLETION DATE _____

NO. OF SAMPLES 1 WATER 8 SOIL _____ OTHER

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR Heartland ESI

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

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: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: Region II CLP Pest/PCB Date: 7/18/91 Case #:

Project: NWS/EARLE Colts Neck, NJ Lab Name: R. F. Weston - Gulf Coast

Reviewer's Initials: [signature] CDS Number of Samples: 9

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0	9	0/180
PCB (7)	0	0	0	0	0	0	9	0/63
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	20	0	0	5	0	9	25/180
PCB (7)	0	7	0	0	0	0	9	7/63
TCDD (1)								

000036

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

July 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 21 & 22, 1991. There were seventeen (17) water samples and two (1) MS/MSDs which were analyzed by the Roy F. Weston - Gulf Coast Laboratory included in this analytical batch.

Samples Reviewed
Water Samples (All)

Field ID	Lab ID	Field ID	Lab ID
07-001-M001	9103L042-001	05-003-M001	9103L042-010
07-002-M001	9103L042-002	05-004-M001	9103L042-011
07-002-M101	9103L042-003	05-004-M101	9103L342-012
07-002-M201	9103L042-004	05-004-M201	9103L042-013
07-003-M001	9103L042-005	05-005-M001	9103L042-014
07-003-M001MS	9103L042-005MS	05-006-M001	9103L042-015
07-003-M001MSD	9103L042-005MSD	05-007-M001	9103L042-016
07-004-M001	9103L042-006	05-008-M001	9103L042-017
07-005-M001	9103L042-007	05-008-M001MS	9103L042-017MS
05-001-M001	9103L042-008	05-008-M001MSD	9103L042-017MSD
05-002-M001	9103L042-009		

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 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

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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 samples were extracted and analyzed within holding times.

GC Instrument Performance

The peaks resulting from all standards analyses for all five sequences included in this package were within the laboratory provided retention time windows for all target analytes. 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 DDT was greater than 10% (14.7) in the initial calibration for the quantitation sequence on Instrument 07, 4/21/91. The laboratory provided a calibration curve for the compound, but no positive hits were identified in any of the associated samples. The initial calibration for the confirmation analyses performed on Instrument 05, 4/21-23/91, also had the %RSD for DDT above 10% (13.4%) and a calibration curve was also provided. These calibrations do not impact the reported results.

Continuing Calibrations

All Percent Differences (%Ds) for all continuing calibration standards (CCSs) were within the appropriate primary and confirmation QC limits.

DATA ASSESSMENT NARRATIVE - continued - Page 2

Blanks

No target compounds were detected in either of the two water method blanks. No target compounds were detected in the field blank, Sample 07-002-M201, taken and associated with samples collected on March 22, 1991.

Surrogate Recoveries

All DBC surrogate recoveries were within the required QC advisory limits.

Matrix Spike/Matrix Spike Duplicate

Two sets of MS/MSDs were included in this analytical batch, corresponding to the two extraction batches included. Also included in the package were two water Blank Spikes (BSs) and Blank Spike Duplicates (BSDs) associated with each extraction batch. The MSD and one BSD had % Recoveries for Endrin just slightly above the upper control limit. All other recoveries were good and within QC limits. All % RPDs were within QC limits.

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

Only one positive hit was identified in the samples; Heptachlor below the CRQL for Sample 07-002-M001. This result was exactly duplicated, quantitatively (0.01 ug/L), in the Field Duplicate, Sample 07-002-M101, which was submitted for that sample.

Overall Assessment

The overall quality of the data package was excellent. The reported results for the samples are accepted without qualification as presented by the laboratory.

HEARTLAND ENVIRONMENTAL SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
All	All	U/J		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

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-001-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-001

Sample wt/vol: 890 (g/mL) ML Lab File ID: 04119107.76

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-002-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-002

Sample wt/vol: 960 (g/mL) ML Lab File ID: 04119107.77

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.010	J
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	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	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-002-M101

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-003

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04119107.78

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.010	J
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	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	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-002-M201

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-004

Sample wt/vol: 910 (g/mL) ML Lab File ID: 04119107.80

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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	0.055	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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-003-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-005

Sample wt/vol: 850 (g/mL) ML Lab File ID: 04119107.81

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.059	U
319-85-7	Beta-BHC	0.059	U
319-86-8	Delta-BHC	0.059	U
58-89-9	gamma-BHC (Lindane)	0.059	U
76-44-8	Heptachlor	0.059	U
309-00-2	Aldrin	0.059	U
1024-57-3	Heptachlor epoxide	0.059	U
959-98-8	Endosulfan I	0.059	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	0.59	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.59	U
5103-74-2	gamma-Chlordane	0.59	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.59	U
11104-28-2	Aroclor-1221	0.59	U
11141-16-5	Aroclor-1232	0.59	U
53469-21-9	Aroclor-1242	0.59	U
12672-29-6	Aroclor-1248	0.59	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-004-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-006

Sample wt/vol: 980 (g/mL) ML Lab File ID: 04119107.84

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
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

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1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

07-005-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-007

Sample wt/vol: 790 (g/mL) ML Lab File ID: 04119107.86

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.063	U
319-85-7	Beta-BHC	0.063	U
319-86-8	Delta-BHC	0.063	U
58-89-9	gamma-BHC (Lindane)	0.063	U
76-44-8	Heptachlor	0.063	U
309-00-2	Aldrin	0.063	U
1024-57-3	Heptachlor epoxide	0.063	U
959-98-8	Endosulfan I	0.063	U
60-57-1	Dieldrin	0.13	U
72-55-9	4,4'-DDE	0.13	U
72-20-8	Endrin	0.13	U
33213-65-9	Endosulfan II	0.13	U
72-54-8	4,4'-DDD	0.13	U
1031-07-8	Endosulfan sulfate	0.13	U
50-29-3	4,4'-DDT	0.13	U
72-43-5	Methoxychlor	0.63	U
53494-70-5	Endrin ketone	0.13	U
5103-71-9	alpha-Chlordane	0.63	U
5103-74-2	gamma-Chlordane	0.63	U
8001-35-2	Toxaphene	1.3	U
12674-11-2	Aroclor-1016	0.63	U
11104-28-2	Aroclor-1221	0.63	U
11141-16-5	Aroclor-1232	0.63	U
53469-21-9	Aroclor-1242	0.63	U
12672-29-6	Aroclor-1248	0.63	U
11097-69-1	Aroclor-1254	1.3	U
11096-82-5	Aroclor-1260	1.3	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-001-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-008

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04119107.87

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	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	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-002-M001

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

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L042-009

Sample wt/vol: 860 (g/mL) ML

Lab File ID: 04119107.88

Level: (low/med) LOW

Date Received: 03/22/91

% Moisture: not dec. _____ dec.

Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/13/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-003-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-010

Sample wt/vol: 940 (g/mL) ML Lab File ID: 04119107.89

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-004-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-011

Sample wt/vol: 980 (g/mL) ML Lab File ID: 04119107.90

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-004-M101

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-012

Sample wt/vol: 970 (g/mL) ML Lab File ID: 04119107.92

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.052	U
319-85-7	Beta-BHC	0.052	U
319-86-8	Delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.052	U
76-44-8	Heptachlor	0.052	U
309-00-2	Aldrin	0.052	U
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	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	0.52	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.52	U
5103-74-2	gamma-Chlordane	0.52	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.52	U
11104-28-2	Aroclor-1221	0.52	U
11141-16-5	Aroclor-1232	0.52	U
53469-21-9	Aroclor-1242	0.52	U
12672-29-6	Aroclor-1248	0.52	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-004-M201

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-013

Sample wt/vol: 830 (g/mL) ML Lab File ID: 04119107.93

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/13/91

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

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.060	U
319-85-7	Beta-BHC	0.060	U
319-86-8	Delta-BHC	0.060	U
58-89-9	gamma-BHC (Lindane)	0.060	U
76-44-8	Heptachlor	0.060	U
309-00-2	Aldrin	0.060	U
1024-57-3	Heptachlor epoxide	0.060	U
959-98-8	Endosulfan I	0.060	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	0.60	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.60	U
5103-74-2	gamma-Chlordane	0.60	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.60	U
11104-28-2	Aroclor-1221	0.60	U
11141-16-5	Aroclor-1232	0.60	U
53469-21-9	Aroclor-1242	0.60	U
12672-29-6	Aroclor-1248	0.60	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

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1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-005-M001

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

Client: Naval Weapons Station

Matrix: WATER

Lab Sample ID: 9103L042-014

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 04119107.94

Level: (low/med) LOW

Date Received: 03/22/91

% Moisture: not dec. _____ dec.

Date Extracted: 03/25/91

Extraction: (SepF/Cont/Sonc) SEPF

Date Analyzed: 04/13/91

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

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	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	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-006-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-015

Sample wt/vol: 850 (g/mL) ML Lab File ID: 04219107.92

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/24/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.29	U
319-85-7	Beta-BHC	0.29	U
319-86-8	Delta-BHC	0.29	U
58-89-9	gamma-BHC (Lindane)	0.29	U
76-44-8	Heptachlor	0.29	U
309-00-2	Aldrin	0.29	U
1024-57-3	Heptachlor epoxide	0.29	U
959-98-8	Endosulfan I	0.29	U
60-57-1	Dieldrin	0.59	U
72-55-9	4,4'-DDE	0.59	U
72-20-8	Endrin	0.59	U
33213-65-9	Endosulfan II	0.59	U
72-54-8	4,4'-DDD	0.59	U
1031-07-8	Endosulfan sulfate	0.59	U
50-29-3	4,4'-DDT	0.59	U
72-43-5	Methoxychlor	2.9	U
53494-70-5	Endrin ketone	0.59	U
5103-71-9	alpha-Chlordane	2.9	U
5103-74-2	gamma-Chlordane	2.9	U
8001-35-2	Toxaphene	5.9	U
12674-11-2	Aroclor-1016	2.9	U
11104-28-2	Aroclor-1221	2.9	U
11141-16-5	Aroclor-1232	2.9	U
53469-21-9	Aroclor-1242	2.9	U
12672-29-6	Aroclor-1248	2.9	U
11097-69-1	Aroclor-1254	5.9	U
11096-82-5	Aroclor-1260	5.9	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-007-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-016

Sample wt/vol: 980 (g/mL) ML Lab File ID: 04219107.93

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/24/91

GPC Cleanup: (Y/N) N pH: 6.0 Dilution Factor: 5.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	0.26	U
319-85-7	Beta-BHC	0.26	U
319-86-8	Delta-BHC	0.26	U
58-89-9	gamma-BHC (Lindane)	0.26	U
76-44-8	Heptachlor	0.26	U
309-00-2	Aldrin	0.26	U
1024-57-3	Heptachlor epoxide	0.26	U
959-98-8	Endosulfan I	0.26	U
60-57-1	Dieldrin	0.51	U
72-55-9	4,4'-DDE	0.51	U
72-20-8	Endrin	0.51	U
33213-65-9	Endosulfan II	0.51	U
72-54-8	4,4'-DDD	0.51	U
1031-07-8	Endosulfan sulfate	0.51	U
50-29-3	4,4'-DDT	0.51	U
72-43-5	Methoxychlor	2.6	U
53494-70-5	Endrin ketone	0.51	U
5103-71-9	alpha-Chlordane	2.6	U
5103-74-2	gamma-Chlordane	2.6	U
8001-35-2	Toxaphene	5.1	U
12674-11-2	Aroclor-1016	2.6	U
11104-28-2	Aroclor-1221	2.6	U
11141-16-5	Aroclor-1232	2.6	U
53469-21-9	Aroclor-1242	2.6	U
12672-29-6	Aroclor-1248	2.6	U
11097-69-1	Aroclor-1254	5.1	U
11096-82-5	Aroclor-1260	5.1	U

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

05-008-M001

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

Client: Naval Weapons Station

Matrix: WATER Lab Sample ID: 9103L042-017

Sample wt/vol: 980 (g/mL) ML Lab File ID: 04219107.87

Level: (low/med) LOW Date Received: 03/22/91

% Moisture: not dec. _____ dec. Date Extracted: 03/26/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/23/91

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

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

CAS NO.	COMPOUND		
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

ACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW#9103L042

LAB: Roy F. Weston - Gulf Coast

SITE: NWS/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 BNA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?		✓
BNA 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.	Collected: 3/21-22/91 Extracted: 3/25-26/91 Analyzed: 4/13 + 4/23-24/91		
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	[ ]		✓

	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?	[ ]		✓
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)

	YES	NO	N/A
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
1 out of ~~12~~ 24 CDS 7/18/91	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: 0 out of ~~8~~ 12 CDS 7/18/91

Soils: 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)

	YES	NO	N/A
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.

	YES	NO	N/A
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.

Sample 07-002-M201 Field Blank taken 3/22/91, only associated with samples taken that day

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 [✓] ___ ___

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?		[✓]	
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?		[✓]	
- 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?	[ ]	[✓]	___

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.

DDT %RSD = 13.4% for Instr. 07 4/21-24/91
No positive hits in samples
Calibration Curve provided.

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.

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).	[✓]	___	___

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.

8.0 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".

8.3 Is DDT 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?	[✓]	___	___

All 5 sequences

	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".			
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.			
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).	Not required hits below CRQL		
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
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.			

All Waters
No dilutions

	YES	NO	N/A
12.0 Field Duplicates			
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.

Duplicates 07-002-M101
& 07-002-M001

%RPD = Ø

Heptachlor = 0.010J ug/L for both

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. RFW# 9103L042 SDG No. _____ LABORATORY R.F. Weston Gulf Coast SITE NWS/Earle 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: _____ Date: 7/18/1991

Verified By: _____ Date: 7/19/1991

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.

All samples extracted & analyzed within holding times

ATTACHMENT 1
SOP NO. HW-6

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 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 positive hits in either method blank

B) Field or rinse blank contamination

07-002-M201

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 dibutylchlorendate must not exceed 10%. Percent D must be within 15% on the quantitation column and 20% on the confirmation column.

The %RSD for DDT was 13.4% for Instrument 07 4/21-24/91 Initial Calibration, outside QC limits. The laboratory provided a calibration curve for the compound, but no positive hits were identified in any associated samples.

All %Ds were within the appropriate primary and confirmation limits for continuing calibration standards.

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 DBC surrogate recoveries were good and within the QC Advisory Limits.

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.

Two positive hits for Heptachlor below the CRQL, within reported retention time windows.

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.

Two sets of MS/MSDs were included in this analytical batch, corresponding to extraction batches. Also included, was a blank spike/BS duplicate set with each extration batch. The MSD % recoveries for Endrin ~~was~~ and one BSD had just slightly above the upper control limit. All other recoveries were good and within QC limits.

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

Field Blank was clean

Field Duplicate had one positive hit, identical

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.

One per sample

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Excellent

DPO [ ] ACTION [ ] FYI Reg: _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO RFW#9103L042 LABORATORY Roy F. Weston - Gulf Coast

SDG NO. _____ DATA USER _____

SOW 2/88 REVIEW COMPLETION DATE 7/19/91

NO. OF SAMPLES 17 WATER 0 SOIL _____ OTHER 2MS/MSDs

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR Heartland ESI

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

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: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: CLP Region II 3/90 Date: 7/19/91 Case #: 91032042

Project: NWS/Earle Colts Neck, NJ Lab Name: Roy F. Weston - Gulf Coast

Reviewer's Initials: Christopher D. Lengellier (CDL) Number of Samples: 17

00043

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0		
PCB (7)	0	0	0	0	0	0	17	340
TCDD (1)							17	119

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0		
PCB (7)	0	0	0	0	0	0	17	0/340
TCDD (1)							17	0/119