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

N60478.AR.000222
NWS EARLE
5090.3a

DATA VALIDATION

REPORT

ORIGINAL

Client Name:	**Roy F. Weston, Inc.**
Site Name:	**NWS - Earle, ColtsNeck, NJ**
RFW Lot No.:	**9206L618, 9206L640 & 9206L610**
QA/QC Level:	**NEESA Level D - EPA Region II**
Fractions:	**VOA, SVOA, Pesticide/Aroclors, Nitros, and Pica**
Volume Number:	**1 of 1**

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Data Validation Report

August 11, 1992

Prepared for

R. F. Weston
Weston Way
West Chester, PA. 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 10, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were two (2) soil samples with one (1) MS/MSD and two (2) water sample which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L618.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The ~~S~~VOA CLP fraction has been validated utilizing method specific requirements, Region II SOP NO. HW-6, March, 1990 requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**VOA**
27-001-S001	9206L618-006	SOIL	X
27-001-S001MS	9206L618-006MS	SOIL	X
27-001-S001MSD	9206L618-006MSD	SOIL	X
27-001-S002	9206L618-007	SOIL	X
27-001-S002RE	9206L618-007RE	SOIL	X
27-001-S201	9206L618-010	WATER	X
TRIP BLANK	9206L618-011	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Dan Heil	Gene Watson

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

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, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, Region II, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case# 9206L618

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW. No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %RSDs. The average RRFs for all of the compounds did not meet the initial calibration criteria minimum of RRFs.

Specific Findings:

1. The initial calibration analyzed on, 05/19/92, had the following compounds with %RSDs greater than 30% RSD. Qualifications are not required because no samples were analyzed following the calibration.

   2-hexanone

Initial Calibrations (continued)

Specific Findings:

2. The initial calibration analyzed on, 05/06/92, had the following compounds with RRFs less than 0.05. Qualifications are not required because no samples were analyzed following the calibration.

   2-butanone

Continuing calibrations

The continuing calibrations that were analyzed with this data package required qualifications for non compliant %Ds and low RRFs.

Specific Findings

3. For the following samples listed below, the continuing calibration Q061502, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVQ081	acetone
27-001-S001	
27-001-S002	
27-001-S001MS	
27-001-S001MSD	

4. For the following samples listed below, the continuing calibration Q061502, contained compounds with %Ds greater than 50% but less than 90%. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

VBLKLVQ081	1,1,2,2-tetrachloroethane
27-001-S001	
27-001-S002	
27-001-S001MS	
27-001-S001MSD	

Continuing Calibrations (continued)

Specific Findings:

5. For the following samples listed below, the continuing calibration Q061703, contained compounds with %Ds greater than 50% but less than 90%. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

VBLKLVQ082	acetone
27-001-S002RE	
VBLKLVQ082-BS	

6. For the following samples listed below the continuing calibration AK6I02, contained compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

VBLKLVK111	2-butanone
VBLKLVK111	
27-001-S201	
TRIP BLANK	

Internal Standards

All internal standard EICP areas did not meet the EICP internal standard area QA/QC criteria.

Specific Findings:

7. The samples listed below exhibited one (1) or more internal standard less than -50% of its associated internal standard. Qualify all positive results associated with the non compliant internal standard(s) as estimated (J) and qualify all non detects as estimated (UJ).

27-001-S001	difluorobenzene chlorobenzene-d_5
27-001-S001MS	bromochloromethane difluorobenzene chlorobenzene-d_5

Internal Standards (continued)

Specific Findings:

7. The samples listed below exhibited one (1) or more internal standard less than -50% of its associated internal standard. Qualify all positive results associated with the non compliant internal standard(s) as estimated (J) and qualify all non detects as estimated (UJ).

27-001-S001MSD	bromochloromethane difluorobenzene chlorobenzene-d_5
27-001-S002	difluorobenzene chlorobenzene-d_5
27-001-S002RE	chlorobenzene-d_5

Method Blanks

The method blanks that were analyzed exhibited contamination for 4-methyl-2-pentanone, 2-hexanone and/or methylene chloride. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific Findings:

8. The following samples have been qualified for blank contamination. The qualifications are for all the blanks.

<u>methylene chloride - CRQL</u>
27-001-S201
TRIP BLANK

Trip Blanks

The trip blanks that were analyzed exhibited contamination for methylene chloride. The trip blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action. The trip blank contamination was attributed to the method blank contamination. No qualifications are required.

Surrogates

All of the surrogate recoveries for the samples were not within QA/QC limits.

Specific Findings:

9. For the following samples with surrogate recoveries above the QA/QC limits, qualify all positive results as estimated (J).

27-001-S001	toluene-d_8
27-001-S001MS	toluene-d_8

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD analyzed for volatiles all of the percent recoveries and RPDs were within advisory limits. No qualifications are required.

Blank Spike/Blank Spike Duplicate (BS/BSD)

The blank spike that was analyzed all recoveries were within the advisory limits. No qualifications are required.

Compound Identification/Quantitation

Specific Findings:

10. For samples 27-001-S002 reject (R) all results and report the results from sample 27-001-S002RE.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
VBLKLVQ081 27-001-S001 27-001-S002 27-001-S001MS 27-001-S001MSD	acetone	+	J	3
VBLKLVQ081 27-001-S001 27-001-S002 27-001-S001MS 27-001-S001MSD	1,1,2,2-tetra-chloroethane	+/-	J/UJ	4
VBLKLVQ082 27-001-S002RE VBLKLVQ082-BS	acetone	+/-	J/UJ	5
VBLKLVK111 VBLKLVK111 27-001-S201 TRIP BLANK	2-butanone	+/-	J/R	6

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
	All analytes for internal standards	+/-	J/UJ	7
27-001-S001	difluorobenzene chlorobenzene-d_5			
27-001-S001MS	bromochloromethane difluorobenzene chlorobenzene-d_5			
27-001-S001MSD	bromochloromethane difluorobenzene chlorobenzene-d_5			
27-001-S002	difluorobenzene chlorobenzene-d_5			
27-001-S002RE	chlorobenzene-d_5			
27-001-S201 TRIP BLANK	methylene chloride	+	CRQL	8
	All analytes for surrogates	+	J	9
27-001-S001 27-001-S001MS	toluene-d_8 toluene-d_8			
27-001-S002	All results	+/-	R	10

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 0 0 0 0 3 1

CLIENT SAMPLE NO.

27-001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: 0061505

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 11

Date Analyzed: 06/15/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	1	J 5 9
67-64-1	Acetone	10	J 5 9,3
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U 5 7
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U 7,4
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0000032

CLIENT SAMPLE NO.

27-001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: Q061505

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 11

Date Analyzed: 06/15/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 0200038

CLIENT SAMPLE NO.

27-001-S002

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-007

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: 0061504

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 6

Date Analyzed: 06/15/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	
74-83-9	Bromomethane	11	
75-01-4	Vinyl Chloride	11	
75-00-3	Chloroethane	11	
75-09-2	Methylene Chloride	11	
67-64-1	Acetone	6	
75-15-0	Carbon Disulfide	11	
75-35-4	1,1-Dichloroethene	11	
75-34-3	1,1-Dichloroethane	11	
540-59-0	1,2-Dichloroethene (total)	11	
67-66-3	Chloroform	11	
107-06-2	1,2-Dichloroethane	11	
78-93-3	2-Butanone	11	
71-55-6	1,1,1-Trichloroethane	11	
56-23-5	Carbon Tetrachloride	11	
75-27-4	Bromodichloromethane	11	
78-87-5	1,2-Dichloropropane	11	
10061-01-5	cis-1,3-Dichloropropene	11	
79-01-6	Trichloroethene	11	
124-48-1	Dibromochloromethane	11	
79-00-5	1,1,2-Trichloroethane	11	
71-43-2	Benzene	11	
10061-02-6	trans-1,3-Dichloropropene	11	
75-25-2	Bromoform	11	
108-10-1	4-Methyl-2-pentanone	11	
591-78-6	2-Hexanone	11	
127-18-4	Tetrachloroethene	11	
79-34-5	1,1,2,2-Tetrachloroethane	11	
108-88-3	Toluene	11	
108-90-7	Chlorobenzene	11	
100-41-4	Ethylbenzene	11	
100-42-5	Styrene	11	
1330-20-7	Xylene (total)	11	

R 10

FORM 1 VOA 3/90

1E

0000039

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

27-001-S002

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-007

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: Q061504

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 6

Date Analyzed: 06/15/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000044

CLIENT SAMPLE NO.

27-001-S002RE

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-007

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: 0061706

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 6

Date Analyzed: 06/17/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11	U
67-64-1	Acetone	3	J J
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U UJ
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	2	J J
79-34-5	1,1,2,2-Tetrachloroethane	11	U UJ
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

FORM 1 VOA 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000050

CLIENT SAMPLE NO.

27-001-S201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L618-010

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: AK6I12

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: not dec. Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 ~~1~~	~~JB~~ U 8
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	5	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	~~10~~	~~U~~ R 6
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

000051

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

27-001-S201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L618-010

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: AK6I12

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec.

Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 0000057

CLIENT SAMPLE NO.

TRIP BLANK

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L618-011

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: AK6I13

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: not dec. Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	~~2~~ 10	JB U 8
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	~~10~~	~~U~~ R 6
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E 0000058 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TRIP BLANK

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L618-011

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: AK6I13

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec.

Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 0 0 0 1 6 1

CLIENT SAMPLE NO.

27-001-S001MS

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006 MS

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: 0061506

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 11

Date Analyzed: 06/15/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	11	U UJ	70
74-83-9	Bromomethane	11	U	
75-01-4	Vinyl Chloride	11	U	
75-00-3	Chloroethane	11	U	
75-09-2	Methylene Chloride	1	J J	9, 70
67-64-1	Acetone	28	J	9, 70, 3
75-15-0	Carbon Disulfide	11	U UJ	10
75-35-4	1,1-Dichloroethene		SP J	9, 18
75-34-3	1,1-Dichloroethane	11	U UJ	70
540-59-0	1,2-Dichloroethene (total)	11	U	
67-66-3	Chloroform	11	U	
107-06-2	1,2-Dichloroethane	11	U	
78-93-3	2-Butanone	11	U	
71-55-6	1,1,1-Trichloroethane	11	U	
56-23-5	Carbon Tetrachloride	11	U	
75-27-4	Bromodichloromethane	11	U	
78-87-5	1,2-Dichloropropane	11	U	
10061-01-5	cis-1,3-Dichloropropene	11	U	
79-01-6	Trichloroethene		SP J	9, 70
124-48-1	Dibromochloromethane	11	U UJ	70
79-00-5	1,1,2-Trichloroethane	11	U UJ	70
71-43-2	Benzene		SP J	9, 70
10061-02-6	trans-1,3-Dichloropropene	11	U UJ	70
75-25-2	Bromoform	11	U	
108-10-1	4-Methyl-2-pentanone	11	U	
591-78-6	2-Hexanone	11	U	
127-18-4	Tetrachloroethene	11	U	
79-34-5	1,1,2,2-Tetrachloroethane	11	U	70
108-88-3	Toluene		SP J	9, 70
108-90-7	Chlorobenzene		SP J	9, 70
100-41-4	Ethylbenzene	11	U UJ	70
100-42-5	Styrene	11	U	
1330-20-7	Xylene (total)	11	U	

SP: SPIKE COMPOUND

FORM 1 VOA

3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 0 0 0 1 6 5

CLIENT SAMPLE NO.

27-001-S001MSD

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006 MSD

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: Q061507

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: not dec. 11

Date Analyzed: 06/15/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U UJ
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	1	J J
67-64-1	Acetone	30	J
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene		SP J
75-34-3	1,1-Dichloroethane	11	U UJ
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene		SP J
124-48-1	Dibromochloromethane	11	U UJ
79-00-5	1,1,2-Trichloroethane	11	U UJ
71-43-2	Benzene		SP J
10061-02-6	trans-1,3-Dichloropropene	11	U UJ
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene		SP J
108-90-7	Chlorobenzene		SP J
100-41-4	Ethylbenzene	11	U UJ
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

7

3

10, 4

SP: SPIKE COMPOUND FORM 1 VOA 3/90

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92066618 LAB: RFW - Lionville

SITE: Coltsneck

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.

		YES	NO	N/A
1.2	Was SMO CCS checklist included with package?	[✓]		

2.0 Cover Letter SDG Narrative

		YES	NO	N/A
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:

	YES	NO
VOA Data?	✓	
BNA Data?		✓
Pesticide/PCB data?		✓

Action: Complete corresponding parts of checklist.

	YES	NO	N/A

PART A: VOA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

	YES	NO	N/A
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 circumstances affecting the quality of the data?	___	[✓]	___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all Non-Detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

	YES	NO	N/A

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? ___ [✓] ___

If unpreserved, aqueous samples maintained at 4°C which are to be analyzed for aromatic hydrocarbons must be analyzed within 7 days of collection. If preserved with HCl (pH<2) and stored at 4°C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved.

The holding time for soils is 10 days.

Table of Holding Time Violations

Sample ID	Sample Matrix	Preserved?	Date Sampled	(See Traffic Report) Date Lab Received	Date Analyzed

08-05-92

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable (R). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

	YES	NO	N/A
3.0 System Monitoring Compound (SMC) Recovery (Form II)			
3.1 Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:			
a. Low Water	[✓]	___	___
b. Low Soil	[✓]	___	___
c. Med Soil	[ ]	___	✓
3.2 Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:			
a. Low Water	[✓]	___	___
b. Low Soil	[✓]	___	___
c. Med Soil	[ ]	___	✓
ACTION: Call lab for explanation/ resubmittals. If missing deliverables are unavailable, document effect in data assessments.			
3.3 Were outliers marked correctly with an asterisk?	[✓]	___	___
ACTION: Circle all outliers in red.			
3.4 Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?	✓	[ ]	___
If yes, were samples re-analyzed?	[✓]	___	___
Were method blanks re-analyzed?	[✓]	___	___

YES NO N/A

ACTION: If recoveries are > 10% but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated (J).
2. Flag all non-detects as estimated detection limits ("UJ") where recovery is less than the lower acceptance limit.
3. If SMC recoveries are above allowable levels, do not qualify non-detects.

If any system monitoring compound recovery is <10% :

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as unusable ("R").

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

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 in the data assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

	YES	NO	N/A
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water	[ ]	✓	
b. Low Soil	[✓]		
c. Med Soil	[ ]		✓

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

4.3 How many VOA spike recoveries are outside QC limits?

Water	Soils
_____ out of 10	0 out of 10

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

Water	Soils
_____ out of 5	0 out of 5

ACTION: No action is taken based on MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

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 VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil, medium soil), whichever is more frequent?	[✓]		

	YES	NO	N/A
5.3 Has a VOA method/instrument blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used?	[✓]	___	___

ACTION: If any method blank data are missing, call lab for explanation/ resubmittal. If method blank data are not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.

	YES	NO	N/A
5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?	[✓]	___	___

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

6.0 Contamination

NOTE: "Water blanks", "drill 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 (TCL and/or TIC) for VOAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture when necessary.	✓	[ ]	___
6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?	✓	[ ]	___

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

YES NO N/A

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral 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. If any blanks are grossly contaminated, all associated data should be qualified as unusable (R).

	Sample conc > CRQL but < 10x blank value	Sample conc < CRQL & <10x blank value	Sample conc > CRQL & >10x blank value
Methylene Chloride Acetone Toluene 2-Butanone	Flag sample result with a "U;	Report CRQL & qualify "U"	No qualification is needed

	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5x blank value
Other Contam-inants	Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

	YES	NO	N/A
ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).			
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 GC/MS Instrument Performance Check (Form V)			
7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?	[✓]	___	___
7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift?	[✓]	___	___
7.3 Has an instrument performance compound been analyzed for every twelve hours of sample analysis per instrument?	[✓]	___	___

YES NO N/A

ACTION: List date, time, instrument ID, and sample analysis for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

DJH 08-05-92

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundances been normalized to m/z 95? [ ] [✓] [ ]

ACTION: If mass assignment is in error, qualify all associated data as unusable (R).

7.5 Have the ion abundance criteria been met for each instrument used? [✓] [ ] [ ]

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.) [ ] [✓] [ ]

	YES	NO	N/A
7.7 Have the appropriate number of significant figures (two) been reported?	[✓]	___	___
ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.			
7.8 Are the spectra of the mass calibration compound acceptable?	[✓]	___	___
ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.			

8.0 Target Compound List (TCL) Analytes

	YES	NO	N/A
8.1 Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates	[✓]	___	___
c. Blanks	[✓]	___	___
8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[✓]	___	___
c. Blanks	[✓]	___	___

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

		YES	NO	N/A
8.3	Are the response factors shown in the Quant Report?	[ ]		✓
8.4	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[✓]		
	Resolution?	[✓]		
	Peak shape?	[✓]		
	Full-scale graph (attenuation)?	[✓]		
	Other: _____	[ ]		

ACTION: Use professional judgement to determine the acceptability of the data.

8.5	Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?	[✓]		

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".

8.6	Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]		
8.7	Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		

	YES	NO	N/A
8.8 Do sample and standard relative ion intensities agree within 20%?	[✓]	___	___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

	YES	NO	N/A
9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]	___	___
9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Blanks	[✓]	___	___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier if missing.

	YES	NO	N/A
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene- a VOA TCL analyte - and should not be reported as a TIC)?		[✓]	
ACTION: Flag with "R" any TCL compound listed as a TIC.			
9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	[✓]		

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate.

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (R). (i.e. Common Lab Contaminants: CO_2 (M/E 44), Siloxanes (M/E 73) Hexane, Aldol Condensation Products, Solvent Preservatives, and related by products - see Functional Guidelines for more guidance).

	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. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[✓]	___
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" and its associated value on the original Form I and substituting the data from the analysis of the 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 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?	[✓]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

	YES	NO	N/A
12.0 GC/MS Initial Calibration (Form VI)			
12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction at concentrations of 10, 20, 50, 100, 200 ug/l? Are there separate calibrations for low water/med soils and low soil samples?	✓		

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Were all low level soil standards, blanks and samples analyzed by heated purge?	✓		

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" and non-detects "R".

12.3 Are response factors stable for VOA's over the concentration range of the calibration (%Relative Standard Deviation (%RSD) <30.0%)?		✓	

ACTION: Circle all outliers in red.

NOTE: Although 11 VOA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If %RSD > 30.0%, qualify associated positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detects for that analyte R (unusable).

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

12.4 Are the RRFs above 0.05?		✓	

Action: Circle all outliers in red.
Action: If any RRF are < 0.05, qualify associated non-detects (R) and flag associated positive data as estimated (J).

	YES	NO	N/A
12.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.)	___	[✓]	___

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the volatile fraction?	[✓]	___	___
13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?	[✓]	___	___

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

_____

_____

_____

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any volatile compounds have a % Difference (% D) between the initial and continuing RRF which exceeds the ± 25% criteria?	✓	[ ]	___

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When % D is above 90%, reject all non-detects for that analyte (R) unusable.

	YES	NO	N/A
13.4 Do any volatile compounds have a RRF <0.05?	[✓]	___	___

ACTION: Circle all outliers in red.

ACTION: If the RRF <0.05, qualify associated non-detects as unusable (R) and "J" associated positive values.

13.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)	___	[✓]	___

ACTION: Circle errors in red.

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

14.0 Internal Standard (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration?	[ ]	✓	___

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
27-001-S001MS	BCM	51653	60274	241094
	DFB	128122	207894	831576
	CBZ	78143	197740	790958
27-001-S001	DFB	177140	207894	831576
	CBZ	108407	197740	790958

(Attach additional sheets if necessary.)

14.0 Internal Standard (Form VIII) (continued)

Sample #	Internal STD	AREA	Lower Limit	Upper Limit
2[redacted]01-S001MSD	BCM	43577	60274	241094
	DFB	55863	207894	831576
	CBZ	60203	197740	790958
27-001-S002	DFB	200584	207894	831576
	CBZ	164624	197740	790958
27-001-S002RE	CBZ	171562	187747	750986

YES NO N/A

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results quantitated with this internal standard.

2. Non-detects associated with IS area counts > 100% should not be qualified.

3. If IS area is below the lower limit (< 50%), qualify all associated non-detects (U values) "J". If extremely low area counts are reported, (< 25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for VOA analysis? [ ] ✓ ___

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

ACTION: Any gross variation between 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.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92061618 SDG No. 27-001-S001 LABORATORY RFW SITE Coltsneck

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), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Daniel J. Heil Date: 08/05/1992

Verified By:_____ Date:___/_____/199__

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 whose holding time has been exceeded 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 analytes in the samples shown were qualified because of holding time:

NONE

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse 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 and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (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

VBIKLVQ081 SOIL
4-methyl-2-pentanone 2 10
2-Hexanone 3 10

VBIKLVK111 water
methylene chloride 2 10

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

C) Trip blank contamination

TRIP Blank
methylene chloride 26 10 NA

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl- phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning:

NONE

DATA ASSESSMENT

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/BNA Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor <0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All non-detects for those compounds will be rejected ("R"). The following analytes in the samples shown were qualified because of response factor:

Initial 05/06/92
no samples 2-butanone

Continuing AK6I02
VBIKLVK111 2-butanone
VBIKWK111-BS
27-001-S201
TRIP BLANK

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 of the continuing calibration check 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 %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

Initial 05/19/92
no samples 2-Hexanone

Continuing 06/15/92 Q061502
VBIKLVQ081 Acetone
27-001-S002 1,1,2,2-Tetrachloroethane >50
27-001-S001
27-001-S001MS
27-001-S001MSD

Continuing 06/17/92 Q061703
VBIKLVQ082 Acetone >50
27-001-S002RE
VBIKLVQ082-BS

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

27-001-S001	Toluene-d_8	148	(84-138)	NA
27-001-S001MS	Toluene-d_8	141	(84-138)	NA

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ" only if IS area is < 50%. Non detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

27-001-S001	~~BCM~~	DFB	CBZ	LOW
27-001-S001MS	BCM	DFB	CBZ	LOW
27-001-S001MSD	BCM	DFB	CBZ	LOW
27-001-S002I		DFB	CBZ	LOW
27-001-S002KE			CBZ	LOW

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. 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 intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

NONE

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

NA

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 data. The following analytes, for the samples shown, were qualified because of MS/MSD:

NONE

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

NONE

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

Fair

12. CONTRACTUAL 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:

27-001-S002RE

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

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

Data Validation Report

August 11, 1992

Prepared for

R. F. Weston
Weston Way
West Chester, PA. 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 10, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were four (4) soil samples with one (1) MS/MSD and one (1) water sample which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L618.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The SVOA CLP fraction has been validated utilizing method specific requirements, Region II SOP NO. HW-6, March, 1990 requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**SVOA**
13-001-B001	9206L618-001	SOIL	X
13-001-B001RE	9206L618-001RE	SOIL	X
13-002-D001	9206L618-002	SOIL	X
27-001-S001	9206L618-006	SOIL	X
27-001-S001RE	9206L618-006RE	SOIL	X
27-001-S001MS	9206L618-006MS	SOIL	X
27-001-S001MSD	9206L618-006MSD	SOIL	X
27-001-S002	9206L618-007	SOIL	X
27-001-S201	9206L618-010	WATER	X

Individual fractions were reviewed as follows:

			Primary	Secondary
SVOA	-	Semivolatile Analysis	Dan Heil	Gene Watson

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

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, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, Region II and NEESA Level C and D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case# 9206L618

Holding Times

All of the holding time were not met for all samples per the SOW and National Functional Guidelines.

Specific Findings:

1. The following samples that exceeded the extraction holding time by nine (9) days. Qualify all positive results as estimated (J) and all non detects as estimated (UJ).

   13-001-B001
   13-001-B001DL
   13-002-D001
   27-001-S001
   27-001-S001DL
   27-001-S001MS
   27-001-S001MSD
   27-001-S002

Tuning

All of the DFTPP tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were acceptable for all compound %RSDs. The average RRFs for all of the criteria compounds met the initial calibration criteria. No qualifications are required.

Continuing Calibrations

The continuing calibrations that were analyzed with this data package required qualifications for non compliant %Ds. All of the criteria and non criteria compounds met RRF requirements.

2. For the samples listed below, the continuing calibration, M070203, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

27-001-S201	n-nitroso-di-n-propylamine *
	hexachloroethane *
	4-nitrophenol
	n-nitroso-diphenylamine
	butylbenzylphthalate
	bis(2-ethylhexyl)phthalate
	3,3'-dichlorobenzidine
	di-n-octylphthalate
	benzo(b)fluoranthene *
	2,4,6-tribromophenol

* - denotes a calibration criteria compound

3. For the samples listed below, the continuing calibration, S070702, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

SBLKLE0943	acenaphthene *
SBLKLE0943-BS	2,4-dinitrophenol
13-002-D001	4-nitrophenol
13-001-B001	4-nitroaniline
	4,6-dinitro-2-methylphenol
	benzo(b)fluoranthene
	2,4,6-tribromophenol

Internal Standards

All of the blank and sample internal standard EICP areas did not meet the EICP internal standard area QA/QC criteria.

4. For the samples listed below with one (1) or more internal standards greater than +100% of the associated internal standards, qualify all positive results associated with the non compliant internal standard(s) as estimated (J) and all non detect results as estimated (UJ).

27-001-S001MS	acenaphthene-d_{10} phenanthrene-d_{10} chrysene-d_{12} perylene-d_{12}
27-001-S001MSD	phenanthrene-d_{10} chrysene-d_{12} perylene-d_{12}
27-001-S001	chrysene-d_{12} perylene-d_{12}
13-001-B001DL	chrysene-d_{12} perylene-d_{12}

Method Blanks

The method blanks that were analyzed exhibited contamination for di-n-butylphthalate, bis(2-ethylhexyl)phthalate and TICs. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific Findings:

5. The following samples have been qualified for blank contamination. Qualifications are for all method blanks

<u>bis(2-ethylhexyl)phthalate - U</u>
27-001-S201
13-002-D001
27-001-S002

Method Blanks (continued)

Specific findings:

5. The following samples have been qualified for blank contamination. Qualifications are for all method blanks

   bis(2-ethylhexyl)phthalate - NA
   27-001-S001DL
   27-001-S001MS
   27-001-S001MSD

   di-n-butylphthalate - CRQL
   27-001-S201
   13-002-D001
   27-001-S001
   27-001-S002
   27-001-S001MS
   27-001-S001MSD

6. The followings samples have been qualified for TIC contamination.

samples	rejected TICs
27-001-S201	1
13-002-D001	1,2,3,7,8
27-001-S001	1,2
27-001-S002	2,3,19,20

Surrogates

All of the surrogate recoveries did not meet the QA/QC criteria. One surrogate from each fraction is allowed to fall outside the criteria window per the SOW and functional guidelines as long as the recovery is greater than 10%. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate

All spike recoveries for the associated MS/MSD were not within the advisory limits. No qualifications are required.

Blank Spike/Blank Spike Duplicate

The BS/BSD spike recoveries were not within the advisory limits. No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

Overall performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates less than 5% of data required qualification

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
13-001-B001 13-001-B001DL 13-002-D001 27-001-S001 27-001-S001DL 27-001-S001MS 27-001-S001MSD 27-001-S002	all analytes	+/-	J/UJ	1
27-001-S201	n-nitroso-di-n-propylamine * hexachloroethane * 4-nitrophenol n-nitroso-diphenylamine butylbenzylphthalate bis(2-ethylhexyl)phthalate 3,3'-dichlorobenzidine di-n-octylphthalate benzo(b)fluoranthene * 2,4,6-tribromophenol * - denotes a calibration criteria compound	+	J	2
SBLKLE0943 SBLKLE0943-BS 13-002-D001 13-001-B001	acenaphthene * 2,4-dinitrophenol 4-nitrophenol 4-nitroaniline 4,6-dinitro-2-methylphenol benzo(b)fluoranthene 2,4,6-tribromophenol * - denotes a calibration criteria compound	+	J	3

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
	all analytes for internal standards	+/-	J/UJ	4
27-001-S001MS	acenaphthene-d_{10} phenanthrene-d_{10} chrysene-d_{12} perylene-d_{12}			
27-001-S001MSD	phenanthrene-d_{10} chrysene-d_{12} perylene-d_{12}			
27-001-S001	chrysene-d_{12} perylene-d_{12}			
13-001-B001DL	chrysene-d_{12} perylene-d_{12}			
27-001-S201 13-002-D001 27-001-S002	bis(ethylhexyl) phthalate	+	U	5
27-001-S001DL 27-001-S001MS 27-001-S001MSD	bis(ethylhexyl) phthalate	+	NA	5
27-001-S201 13-002-D001 27-001-S001 27-001-S002 27-001-S001MS 27-001-S001MSD	di-n-butyl-phthalate	+	CRQL	5

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
	TICs	+	R	6
27-001-S201	1			
13-002-D001	1,2,3,7,8			
27-001-S001	1,2			
27-001-S002	2,3,19,20			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

13-001-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S070714

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 12 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/07/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	35	J J
111-44-4	bis(2-Chloroethyl)ether	380	U UJ
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(2-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	61	J J
106-47-8	4-Chloroaniline	380	U UJ
87-68-3	Hexachlorobutadiene	380	U UJ
59-50-7	4-Chloro-3-methylphenol	380	U UJ
91-57-6	2-Methylnaphthalene	44	J J
77-47-4	Hexachlorocyclopentadiene	380	U UJ
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	680	J
606-20-2	2,6-Dinitrotoluene	380	U UJ
99-09-2	3-Nitroaniline	950	U UJ
83-32-9	Acenaphthene	89	J J

1.

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000043

CLIENT SAMPLE NO.

13-001-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: S070714

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 12 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/07/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	100	J
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	280	J
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene		E
120-12-7	Anthracene	1800	
86-74-8	Carbazole	260	J
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene		E
129-00-0	Pyrene		E
85-68-7	Butylbenzylphthalate	380	U
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene		E
218-01-9	Chrysene		E
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octyl phthalate	380	U
205-99-2	Benzo(b)fluoranthene		E
207-08-9	Benzo(k)fluoranthene		E
50-32-8	Benzo(a)pyrene	2400	
193-39-5	Indeno(1,2,3-cd)pyrene	870	
53-70-3	Dibenz(a,h)anthracene	880	
191-24-2	Benzo(g,h,i)perylene	1700	

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

13-001-B001DL

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-001 DL

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: J071513

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 12 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	NA	
111-44-4	bis(2-Chloroethyl)ether	NA	
95-57-8	2-Chlorophenol	NA	
541-73-1	1,3-Dichlorobenzene	NA	
106-46-7	1,4-Dichlorobenzene	NA	
95-50-1	1,2-Dichlorobenzene	NA	
95-48-7	2-Methylphenol	NA	
108-60-1	2,2'-oxybis(2-Chloropropane)	NA	
106-44-5	4-Methylphenol	NA	
621-64-7	N-Nitroso-di-n-propylamine	NA	
67-72-1	Hexachloroethane	NA	
98-95-3	Nitrobenzene	NA	
78-59-1	Isophorone	NA	
88-75-5	2-Nitrophenol	NA	
105-67-9	2,4-Dimethylphenol	NA	
111-91-1	bis(2-Chloroethoxy)methane	NA	
120-83-2	2,4-Dichlorophenol	NA	
120-82-1	1,2,4-Trichlorobenzene	NA	
91-20-3	Naphthalene	NA	
106-47-8	4-Chloroaniline	NA	
87-68-3	Hexachlorobutadiene	NA	
59-50-7	4-Chloro-3-methylphenol	NA	
91-57-6	2-Methylnaphthalene	NA	
77-47-4	Hexachlorocyclopentadiene	NA	
88-06-2	2,4,6-Trichlorophenol	NA	
95-95-4	2,4,5-Trichlorophenol	NA	
91-58-7	2-Chloronaphthalene	NA	
88-74-4	2-Nitroaniline	NA	
131-11-3	Dimethylphthalate	NA	
208-96-8	Acenaphthylene	NA	
606-20-2	2,6-Dinitrotoluene	NA	
99-09-2	3-Nitroaniline	NA	
83-32-9	Acenaphthene	NA	

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

13-001-B001DL

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-001 DL

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: J071513

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 12 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	NA	
100-02-7	4-Nitrophenol	NA	
132-64-9	Dibenzofuran	NA	
121-14-2	2,4-Dinitrotoluene	NA	
84-66-2	Diethylphthalate	NA	
7005-72-3	4-Chlorophenyl-phenylether	NA	
86-73-7	Fluorene	NA	
100-01-6	4-Nitroaniline	NA	
534-52-1	4,6-Dinitro-2-methylphenol	NA	
86-30-6	N-Nitrosodiphenylamine (1)	NA	
101-55-3	4-Bromophenyl-phenylether	NA	
118-74-1	Hexachlorobenzene	NA	
87-86-5	Pentachlorophenol	NA	
85-01-8	Phenanthrene	4400	J
120-12-7	Anthracene	NA	
86-74-8	Carbazole	NA	
84-74-2	Di-n-butylphthalate	NA	
206-44-0	Fluoranthene	15000	J
129-00-0	Pyrene	13000	J
85-68-7	Butylbenzylphthalate	NA	
91-94-1	3,3'-Dichlorobenzidine	NA	
56-55-3	Benzo(a)anthracene	8700	J
218-01-9	Chrysene	9200	J
117-81-7	bis(2-Ethylhexyl)phthalate	NA	
117-84-0	Di-n-octyl phthalate	NA	
205-99-2	Benzo(b)fluoranthene	7900	J
207-08-9	Benzo(k)fluoranthene	6600	J
50-32-8	Benzo(a)pyrene	NA	
193-39-5	Indeno(1,2,3-cd)pyrene	NA	
53-70-3	Dibenz(a,h)anthracene	NA	
191-24-2	Benzo(g,h,i)perylene	NA	

4,1.

(1) - Cannot be separated from Diphenylamine

1B

0 0 0 1 3 9

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

13-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-002

Sample wt/vol: 17.0 (g/mL) G

Lab File ID: S070713

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 21 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/07/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	740	U
111-44-4	bis(2-Chloroethyl)ether	740	U
95-57-8	2-Chlorophenol	740	U
541-73-1	1,3-Dichlorobenzene	740	U
106-46-7	1,4-Dichlorobenzene	740	U
95-50-1	1,2-Dichlorobenzene	740	U
95-48-7	2-Methylphenol	740	U
108-60-1	2,2'-oxybis(2-Chloropropane)	740	U
106-44-5	4-Methylphenol	740	U
621-64-7	N-Nitroso-di-n-propylamine	740	U
67-72-1	Hexachloroethane	740	U
98-95-3	Nitrobenzene	740	U
78-59-1	Isophorone	740	U
88-75-5	2-Nitrophenol	740	U
105-67-9	2,4-Dimethylphenol	740	U
111-91-1	bis(2-Chloroethoxy)methane	740	U
120-83-2	2,4-Dichlorophenol	740	U
120-82-1	1,2,4-Trichlorobenzene	740	U
91-20-3	Naphthalene	740	U
106-47-8	4-Chloroaniline	740	U
87-68-3	Hexachlorobutadiene	740	U
59-50-7	4-Chloro-3-methylphenol	740	U
91-57-6	2-Methylnaphthalene	740	U
77-47-4	Hexachlorocyclopentadiene	740	U
88-06-2	2,4,6-Trichlorophenol	740	U
95-95-4	2,4,5-Trichlorophenol	1900	U
91-58-7	2-Chloronaphthalene	740	U
88-74-4	2-Nitroaniline	1900	U
131-11-3	Dimethylphthalate	740	U
208-96-8	Acenaphthylene	740	U
606-20-2	2,6-Dinitrotoluene	740	U
99-09-2	3-Nitroaniline	1900	U
83-32-9	Acenaphthene	740	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 000140

CLIENT SAMPLE NO.

13-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-002

Sample wt/vol: 17.0 (g/mL) G

Lab File ID: S070713

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 21 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/07/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	1900	U UJ	1.
100-02-7	4-Nitrophenol	1900	U	
132-64-9	Dibenzofuran	740	U	
121-14-2	2,4-Dinitrotoluene	740	U	
84-66-2	Diethylphthalate	740	U	
7005-72-3	4-Chlorophenyl-phenylether	740	U	
86-73-7	Fluorene	740	U	
100-01-6	4-Nitroaniline	1900	U	
534-52-1	4,6-Dinitro-2-methylphenol	1900	U	
86-30-6	N-Nitrosodiphenylamine (1)	740	U	
101-55-3	4-Bromophenyl-phenylether	740	U	
118-74-1	Hexachlorobenzene	740	U	
87-86-5	Pentachlorophenol	1900	U	
85-01-8	Phenanthrene	740	U	
120-12-7	Anthracene	740	U	
86-74-8	Carbazole	740	U	
84-74-2	Di-n-butylphthalate	740 ~~170~~	~~JB~~ UJ	1.
206-44-0	Fluoranthene	740	U UJ	1.
129-00-0	Pyrene	740	U	
85-68-7	Butylbenzylphthalate	740	U	
91-94-1	3,3'-Dichlorobenzidine	740	U	
56-55-3	Benzo(a)anthracene	740	U	
218-01-9	Chrysene	740	U	
117-81-7	bis(2-Ethylhexyl)phthalate	940	~~B~~ UJ	1.
117-84-0	Di-n-octyl phthalate	740	U UJ	1.
205-99-2	Benzo(b)fluoranthene	740	U	
207-08-9	Benzo(k)fluoranthene	740	U	
50-32-8	Benzo(a)pyrene	740	U	
193-39-5	Indeno(1,2,3-cd)pyrene	740	U	
53-70-3	Dibenz(a,h)anthracene	740	U	
191-24-2	Benzo(g,h,i)perylene	740	U	

(1) - Cannot be separated from Diphenylamine

1F

000141

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

13-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-002

Sample wt/vol: 17.0 (g/mL) G

Lab File ID: S070713

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 21 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/07/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.2

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.07	~~800~~	~~JAB~~ R 6
2.	CYCLOHEXANONE	5.38	~~200~~	~~JB~~ R 6
3.	ALDOL CONDENSATE	5.55	~~800~~	~~JAB~~ R 6
4.	ALDOL CONDENSATE	6.28	900	JA
5.	ALDOL CONDENSATE	6.67	200	JA
6.	ALDOL CONDENSATE	7.30	600	JA
7.	ADIPATE	21.97	~~600~~	~~JB~~ R 6
8.	HYDROCARBON	22.55	~~400~~	~~JB~~ R 6
9.	UNKNOWN	25.00	700	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

27-001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-006

Sample wt/vol: 30.6 (g/mL) G Lab File ID: J071510

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/15/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	370	U UJ
111-44-4	bis(2-Chloroethyl)ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(2-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	150	J J
106-47-8	4-Chloroaniline	370	U UJ
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	67	J J
77-47-4	Hexachlorocyclopentadiene	370	U UJ
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	920	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	920	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	920	U
83-32-9	Acenaphthene	370	U

1.

1C 0000161

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

27-001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-006

Sample wt/vol: 30.6 (g/mL) G Lab File ID: J071510

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/15/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	920	U UJ	1.
100-02-7	4-Nitrophenol	920	U	
132-64-9	Dibenzofuran	370	U	
121-14-2	2,4-Dinitrotoluene	370	U	
84-66-2	Diethylphthalate	370	U	
7005-72-3	4-Chlorophenyl-phenylether	370	U	
86-73-7	Fluorene	370	U	
100-01-6	4-Nitroaniline	920	U	
534-52-1	4,6-Dinitro-2-methylphenol	920	U	
86-30-6	N-Nitrosodiphenylamine (1)	370	U	
101-55-3	4-Bromophenyl-phenylether	370	U	
118-74-1	Hexachlorobenzene	370	U	
87-86-5	Pentachlorophenol	920	U	
85-01-8	Phenanthrene	370	U	
120-12-7	Anthracene	370	U	
86-74-8	Carbazole	370	U	
84-74-2	Di-n-butylphthalate	370 ~~210~~	~~JB~~ UJ	1.
206-44-0	Fluoranthene	370	U ~~UJ~~	
129-00-0	Pyrene	370	U UJ	4, 1.
85-68-7	Butylbenzylphthalate	370	U	
91-94-1	3,3'-Dichlorobenzidine	370	U	
56-55-3	Benzo(a)anthracene	370	U	
218-01-9	Chrysene	370	U	
117-81-7	bis(2-Ethylhexyl)phthalate		E J	
117-84-0	Di-n-octyl phthalate	370	U UJ	
205-99-2	Benzo(b)fluoranthene	370	U	
207-08-9	Benzo(k)fluoranthene	370	U	
50-32-8	Benzo(a)pyrene	370	U	
193-39-5	Indeno(1,2,3-cd)pyrene	370	U	
53-70-3	Dibenz(a,h)anthracene	370	U	
191-24-2	Benzo(g,h,i)perylene	370	U	

(1) - Cannot be separated from Diphenylamine

1F

000162

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

27-001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006

Sample wt/vol: 30.6 (g/mL) G

Lab File ID: J071510

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.4

Number TICs found: 27

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.31	~~300~~	~~JAB~~ 4
2.	ALDOL CONDENSATE	6.84	~~200~~	~~JAB~~ 6
3.	ALKANE	8.64	500	J
4.	ALKANE	8.87	300	J
5.	ALKANE	9.02	300	J
6.	ALKANE	9.35	1000	J
7.	ALKANE	9.82	600	J
8.	ALKANE	9.91	400	J
9.	ALKANE	10.08	400	J
10.	ALKANE	10.50	1000	J
11.	ALKANE	10.78	400	J
12.	ALKANE	10.97	2000	J
13.	ALKANE	11.94	300	J
14.	ALKANE	12.07	800	J
15.	ALKANE	12.49	800	J
16.	PAH	13.15	300	J
17.	ALKANE	13.93	300	J
18.	AROMATIC	17.33	300	J
19.	ORGANIC ACID	20.33	5000	J
20.	UNKNOWN	21.56	2000	J
21.	ORGANIC ACID	21.67	2000	J
22.	ALKANE	22.41	300	J
23.	UNKNOWN	22.60	500	J
24.	UNKNOWN	22.71	400	J
25.	ALKANE	23.02	800	J
26.	ALKANE	23.69	800	J
27.	UNKNOWN	26.60	600	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

0 0 0 0 2 0 6

CLIENT SAMPLE NO.

27-001-S001DL

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006 DL

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: J071614

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/16/92

Injection Volume: 2.0(uL)

Dilution Factor: 2.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	NA	
111-44-4	bis(2-Chloroethyl)ether	NA	
95-57-8	2-Chlorophenol	NA	
541-73-1	1,3-Dichlorobenzene	NA	
106-46-7	1,4-Dichlorobenzene	NA	
95-50-1	1,2-Dichlorobenzene	NA	
95-48-7	2-Methylphenol	NA	
108-60-1	2,2'-oxybis(2-Chloropropane)	NA	
106-44-5	4-Methylphenol	NA	
621-64-7	N-Nitroso-di-n-propylamine	NA	
67-72-1	Hexachloroethane	NA	
98-95-3	Nitrobenzene	NA	
78-59-1	Isophorone	NA	
88-75-5	2-Nitrophenol	NA	
105-67-9	2,4-Dimethylphenol	NA	
111-91-1	bis(2-Chloroethoxy)methane	NA	
120-83-2	2,4-Dichlorophenol	NA	
120-82-1	1,2,4-Trichlorobenzene	NA	
91-20-3	Naphthalene	NA	
106-47-8	4-Chloroaniline	NA	
87-68-3	Hexachlorobutadiene	NA	
59-50-7	4-Chloro-3-methylphenol	NA	
91-57-6	2-Methylnaphthalene	NA	
77-47-4	Hexachlorocyclopentadiene	NA	
88-06-2	2,4,6-Trichlorophenol	NA	
95-95-4	2,4,5-Trichlorophenol	NA	
91-58-7	2-Chloronaphthalene	NA	
88-74-4	2-Nitroaniline	NA	
131-11-3	Dimethylphthalate	NA	
208-96-8	Acenaphthylene	NA	
606-20-2	2,6-Dinitrotoluene	NA	
99-09-2	3-Nitroaniline	NA	
83-32-9	Acenaphthene	NA	

1C 0100207 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

27-001-S001DL

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-006 DL

Sample wt/vol: 5.00 (g/mL) G Lab File ID: J071614

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/16/92

Injection Volume: 2.0(uL) Dilution Factor: 2.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	NA	
100-02-7	4-Nitrophenol	NA	
132-64-9	Dibenzofuran	NA	
121-14-2	2,4-Dinitrotoluene	NA	
84-66-2	Diethylphthalate	NA	
7005-72-3	4-Chlorophenyl-phenylether	NA	
86-73-7	Fluorene	NA	
100-01-6	4-Nitroaniline	NA	
534-52-1	4,6-Dinitro-2-methylphenol	NA	
86-30-6	N-Nitrosodiphenylamine (1)	NA	
101-55-3	4-Bromophenyl-phenylether	NA	
118-74-1	Hexachlorobenzene	NA	
87-86-5	Pentachlorophenol	NA	
85-01-8	Phenanthrene	NA	
120-12-7	Anthracene	NA	
86-74-8	Carbazole	NA	
84-74-2	Di-n-butylphthalate	NA	
206-44-0	Fluoranthene	NA	
129-00-0	Pyrene	NA	
85-68-7	Butylbenzylphthalate	NA	
91-94-1	3,3'-Dichlorobenzidine	NA	
56-55-3	Benzo(a)anthracene	NA	
218-01-9	Chrysene	NA	
117-81-7	bis(2-Ethylhexyl)phthalate	4700	B J 5.1.
117-84-0	Di-n-octyl phthalate	NA	
205-99-2	Benzo(b)fluoranthene	NA	
207-08-9	Benzo(k)fluoranthene	NA	
50-32-8	Benzo(a)pyrene	NA	
193-39-5	Indeno(1,2,3-cd)pyrene	NA	
53-70-3	Dibenz(a,h)anthracene	NA	
191-24-2	Benzo(g,h,i)perylene	NA	

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

0000216

CLIENT SAMPLE NO.

27-001-S002

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-007

Sample wt/vol: 30.9 (g/mL) G

Lab File ID: J071509

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 6 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	340	U UJ
111-44-4	bis(2-Chloroethyl)ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(2-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-di-n-propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy)methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	25	J
106-47-8	4-Chloroaniline	340	U UJ
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	860	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	860	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	860	U
83-32-9	Acenaphthene	340	U

1C 000217 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

27-001-S002

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-007

Sample wt/vol: 30.9 (g/mL) G Lab File ID: J071509

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 6 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/15/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	860	U UJ	1.
100-02-7	4-Nitrophenol	860	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	U	
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	860	U	
534-52-1	4,6-Dinitro-2-methylphenol	860	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	U	
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	860	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
86-74-8	Carbazole	340	U	
84-74-2	Di-n-butylphthalate	340 ~~56~~	~~JB~~ UJ	S, 1.
206-44-0	Fluoranthene	340	U UJ	1.
129-00-0	Pyrene	340	U	
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	340	U	
56-55-3	Benzo(a)anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)phthalate	400	~~B~~ UJ	S, 1.
117-84-0	Di-n-octyl phthalate	340	U UJ	1.
205-99-2	Benzo(b)fluoranthene	340	U	
207-08-9	Benzo(k)fluoranthene	340	U	
50-32-8	Benzo(a)pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)pyrene	340	U	
53-70-3	Dibenz(a,h)anthracene	340	U	
191-24-2	Benzo(g,h,i)perylene	340	U	

(1) - Cannot be separated from Diphenylamine

1F

0000273

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

27-001-S002

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-007

Sample wt/vol: 30.9 (g/mL) G

Lab File ID: J071509

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 6 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.2

Number TICs found: 21

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.40	70	J
2.	ALDOL CONDENSATE	6.32	~~300~~	~~JAB~~ RLY
3.	ALDOL CONDENSATE	6.87	~~300~~	~~JAB~~ RLY
4.	ALDOL CONDENSATE	7.60	200	JA
5.	ALDOL CONDENSATE	8.66	200	JA
6.	ALKANE	9.37	400	J
7.	ALKANE	9.65	100	J
8.	ALKANE	9.83	100	J
9.	UNKNOWN	10.18	90	J
10.	UNKNOWN	10.41	100	J
11.	ALKANE	10.48	300	J
12.	ALKANE	10.80	70	J
13.	ALKANE	10.98	300	J
14.	ALKANE	12.10	100	J
15.	ALKANE	12.51	90	J
16.	ORGANIC ACID	20.30	400	J
17.	ORGANIC ACID	21.66	90	J
18.	ALKANE	23.04	70	J
19.	ADIPATE	23.13	~~200~~	~~JB~~ RLY
20.	HYDROCARBON	23.75	~~200~~	~~JB~~ RLY
21.	UNKNOWN	26.61	300	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000254

CLIENT SAMPLE NO.

27-001-S201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L618-010

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M070210

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 06/15/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/02/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(2-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 000255

CLIENT SAMPLE NO.

27-001-S201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L618-010

Sample wt/vol: 990 (g/mL) ML Lab File ID: M070210

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/15/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/02/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10 ~~1~~	~~JB~~ U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	24	~~B~~ U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F 0000256 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

27-001-S201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L618-010

Sample wt/vol: 990 (g/mL) ML Lab File ID: M070210

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/15/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/02/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.35	~~10~~	~~JB~~ 4

FORM 1 SV-TIC 3/90

1B 0000564 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

27-001-S001MS

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-006 MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J071511

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/15/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol		SP J
111-44-4	bis(2-Chloroethyl)ether	370	U UJ
95-57-8	2-Chlorophenol		SP J
541-73-1	1,3-Dichlorobenzene	370	U UJ
106-46-7	1,4-Dichlorobenzene		SP J
95-50-1	1,2-Dichlorobenzene	370	U UJ
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(2-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine		SP J
67-72-1	Hexachloroethane	370	U UJ
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene		SP J
91-20-3	Naphthalene	160	J J
106-47-8	4-Chloroaniline	370	U UJ
87-68-3	Hexachlorobutadiene	370	U UJ
59-50-7	4-Chloro-3-methylphenol		SP J
91-57-6	2-Methylnaphthalene	73	J J
77-47-4	Hexachlorocyclopentadiene	370	U UJ
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	940	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	940	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene		SP J

1.

4, 1.

SP: SPIKE COMPOUND FORM 1 SV-1 3/90

1C 0100565 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

27-001-S001MS

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-006 MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J071511

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/15/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	940	U UJ	4, 1.
100-02-7	4-Nitrophenol		SP	
132-64-9	Dibenzofuran	370	U	
121-14-2	2,4-Dinitrotoluene		SP	
84-66-2	Diethylphthalate	370	U	
7005-72-3	4-Chlorophenyl-phenylether	370	U	
86-73-7	Fluorene	370	U	
100-01-6	4-Nitroaniline	940	U	
534-52-1	4,6-Dinitro-2-methylphenol	940	U	
86-30-6	N-Nitrosodiphenylamine (1)	370	U	
101-55-3	4-Bromophenyl-phenylether	370	U	
118-74-1	Hexachlorobenzene	370	U	
87-86-5	Pentachlorophenol		SP	
85-01-8	Phenanthrene	370	U	
120-12-7	Anthracene	370	U	
86-74-8	Carbazole	370	U	
84-74-2	Di-n-butylphthalate	370 ~~110~~	JB UJ	5, 4, 1.
206-44-0	Fluoranthene	370	U UJ	4, 1.
129-00-0	Pyrene		SP	
85-68-7	Butylbenzylphthalate	370	U	
91-94-1	3,3'-Dichlorobenzidine	370	U	
56-55-3	Benzo(a)anthracene	370	U	
218-01-9	Chrysene	370	U	
117-81-7	bis(2-Ethylhexyl)phthalate	4300	~~B~~ J	5, 4, 1.
117-84-0	Di-n-octyl phthalate	370	U UJ	4
205-99-2	Benzo(b)fluoranthene	370	U	
207-08-9	Benzo(k)fluoranthene	370	U	
50-32-8	Benzo(a)pyrene	370	U	
193-39-5	Indeno(1,2,3-cd)pyrene	370	U	
53-70-3	Dibenz(a,h)anthracene	370	U	
191-24-2	Benzo(g,h,i)perylene	370	U	

(1) - Cannot be separated from Diphenylamine

SP: SPIKE COMPOUND FORM 1 SV-2 3/90

1B 0100572 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

27-001-S001MSD

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L618-006 MSD

Sample wt/vol: 30.3 (g/mL) G Lab File ID: J071512

Level: (low/med) LOW Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__ Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/15/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol		SP 5
111-44-4	bis(2-Chloroethyl)ether	370	U 5
95-57-8	2-Chlorophenol		SP 5
541-73-1	1,3-Dichlorobenzene	370	U 5
106-46-7	1,4-Dichlorobenzene		SP 5
95-50-1	1,2-Dichlorobenzene	370	U 5
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(2-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine		SP 5
67-72-1	Hexachloroethane	370	U 5
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene		SP 5
91-20-3	Naphthalene	140	J 5
106-47-8	4-Chloroaniline	370	U 5
87-68-3	Hexachlorobutadiene	370	U 5
59-50-7	4-Chloro-3-methylphenol		SP 5
91-57-6	2-Methylnaphthalene	65	J 5
77-47-4	Hexachlorocyclopentadiene	370	U 5
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene		SP 5

SP: SPIKE COMPOUND

1C

0 1 0 0 5 7 3

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

27-001-S001MSD

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006 MSD

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: J071512

Level: (low/med) LOW

Date Received: 06/10/92

% Moisture: 11 decanted: (Y/N)__

Date Extracted: 06/26/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	930	U UJ	1.0
100-02-7	4-Nitrophenol		SP J	
132-64-9	Dibenzofuran	370	U UJ	
121-14-2	2,4-Dinitrotoluene		SP J	
84-66-2	Diethylphthalate	370	U UJ	
7005-72-3	4-Chlorophenyl-phenylether	370	U	
86-73-7	Fluorene	370	U	
100-01-6	4-Nitroaniline	930	U	
534-52-1	4,6-Dinitro-2-methylphenol	930	U UJ	4, 1.0
86-30-6	N-Nitrosodiphenylamine (1)	370	U	
101-55-3	4-Bromophenyl-phenylether	370	U	
118-74-1	Hexachlorobenzene	370	U	
87-86-5	Pentachlorophenol		SP J	4, 1.0
85-01-8	Phenanthrene	370	U UJ	4, 1.0
120-12-7	Anthracene	370	U	
86-74-8	Carbazole	370	U	
84-74-2	Di-n-butylphthalate	370 ~~73~~	~~JB~~ UJ J	5, 4, 1.0
206-44-0	Fluoranthene	370	U UJ	4, 1.
129-00-0	Pyrene		SP J	4, 1.
85-68-7	Butylbenzylphthalate	370	U UJ	4, 1.
91-94-1	3,3'-Dichlorobenzidine	370	U	
56-55-3	Benzo(a)anthracene	370	U	
218-01-9	Chrysene	370	U	
117-81-7	bis(2-Ethylhexyl)phthalate	2700	~~B~~ J	5, 4, 1.
117-84-0	Di-n-octyl phthalate	370	U UJ	4, 1.
205-99-2	Benzo(b)fluoranthene	370	U	
207-08-9	Benzo(k)fluoranthene	370	U	
50-32-8	Benzo(a)pyrene	370	U	
193-39-5	Indeno(1,2,3-cd)pyrene	370	U	
53-70-3	Dibenz(a,h)anthracene	370	U	
191-24-2	Benzo(g,h,i)perylene	370	U	

(1) - Cannot be separated from Diphenylamine

SP: SPIKE COMPOUND

FORM 1 SV-2

3/90

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92061418 LAB: RFW - Lionville

SITE: Coltsneck

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.

		YES	NO	N/A
1.2	Was SMO CCS checklist included with package?	[✓]		

2.0 Cover Letter SDG Narrative

		YES	NO	N/A
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:

	YES	NO
VOA Data?		✓
BNA Data?	✓	
Pesticide/PCB data?		✓

Action: Complete corresponding parts of checklist.

	YES	NO	N/A

PART B: BNA 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: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated ("J"). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? ✓ [ ] ___

Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/ sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

YES NO N/A

Table of Holding Time Violations

(See Traffic Report)

Sample	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed
13-001-B001	Soil	06/10/92	06/11/92	06/26/92	07/07/92
13-001-B001					07/15/92
13-002-D001					07/07/92
27-001-S001					07/15/92
27-001-S001/MS					07/16/92
27-001-S001/MSD					07/15/92
27-002-S002					07/15/92

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded.

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable ("R"). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

3.0 Surrogate Recovery (Form II)

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

		YES	NO	N/A
a.	Low Water	[✓]		
b.	Low Soil	[✓]		
c.	Med Soil	[ ]		✓

	YES	NO	N/A
3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
a. Low Water	[✓]		
b. Low Soil	[✓]		
c. Low Soil	[✓]		

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers in red.

3.4 Were two or more base-neutral <u>OR</u> acid surrogate recoveries out of specification for any sample or method blank?	[ ]	✓	
If yes, were samples reanalyzed?	[ ]		✓
Were method blanks reanalyzed?	[ ]		✓

ACTION: If all BNA surrogate recoveries are > 10% but two within the base-neutral or acid fraction do not meet SOW specifications, <u>for the affected fraction only (i.e. base-neutral or acid compounds)</u>:

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.
3. If recoveries are greater than the upper acceptance limit, do not qualify non-detects.

	YES	NO	N/A

If any base-neutral or acid surrogate has a recovery of <10%:

1. Positive results for the fraction with <10% surrogate recovery are qualified with "J".

2. Non-detects for that fraction should be qualified as unusable (R) .

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Check the internal standard areas.

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 document effect in data assessments.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/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. Low Soil [✓] ___ ___

c. Med Soil [ ] ___ ✓ ___

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

YES NO N/A

4.3 How many BNA spike recoveries are outside QC limits?

Water	Soils
____ out of 22	2 out of 22

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

Water	Soils
____ out of 11	0 out of 11

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [✓] ___ ___

5.2 Frequency of Analysis:

Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch? [✓] ___ ___

5.3 Has a BNA method blank been analyzed for each GC/MS system used? [✓] ___ ___
(See SOW p. D - 59/SV, Section 8.7)

ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If not available, use professional judgement to determine if the associated sample data should be qualified.

	YES	NO	N/A
5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.			
Is the chromatographic performance (baseline stability) for each instrument acceptable for BNAs?	✓		

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

6.0 Contamination

Note: "Water blanks", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify the 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 (TCL and/or TIC) for BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture where necessary.	✓		
6.2 Do any field/rinse/ blanks have positive BNA results (TCL and/or TIC)?			✓

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

Note: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Blanks may not be qualified because of contamination in another blank . Field Blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable (R).

Sample conc > CRQL but < 10x blank	Sample conc <CRQL & is< 10x blank value	Sample conc > CRQL value & >10x blank
Common Phthalate Esters		
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed
Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & >5 blank value
Other Contaminants		
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

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.

YES NO N/A

7.0 GC/MS Instrument Performance Check

7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? [✓] ___ ___

7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift? [✓] ___ ___

7.3 Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument? [✓] ___ ___

ACTION: List date, time, instrument ID, and sample analyses for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

ACTION: If mass assignment is in error, flag all associated sample data as unusable (R).

7.4 Have the ion abundances been normalized to m/z 198? [ ] [✓] ___

	YES	NO	N/A
7.5 Have the ion abundance criteria been met for each instrument used?	[✓]		

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)		[✓]	
7.7 Have the appropriate number of significant figures (two) been reported?	[✓]		

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

7.8 Are the spectra of the mass calibration compound acceptable?	[✓]		

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 Target Compound List (TCL) Analytes

8.1 Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate	[✓]		
b. Matrix spikes and matrix spike duplicates	[✓]		
c. Blanks	[✓]		

		YES	NO	N/A
8.2	Has GPC cleanup been performed on all soil/ sediment sample extracts?	[✓]		
	ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in "Contract Problems/Non-Compliance".			
8.3	Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
	a. Samples and/or fractions as appropriate	[✓]		
	b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[✓]		
	c. Blanks	[✓]		
	ACTION: If any data are missing, take action specified in 3.2 above.			
8.4	Are the response factors shown in the Quant Report?	[ ]	[✓]	
8.5	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[✓]		
	Resolution?	[✓]		
	Peak shape?	[✓]		
	Full-scale graph (attenuation)?	[✓]		
	Other:_____	[ ]		
	ACTION: Use professional judgement to determine the acceptability of the data.			

	YES	NO	N/A
8.6 Are the lab-generated standard mass spectra of identified BNA compounds present for each sample?	[✓]		

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/ Non-compliance". If spectra are missing, reject all positive data.

8.7 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]		
8.8 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		
8.9 Do sample and standard relative ion intensities agree within 20%?	[✓]		

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (Presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]		

	YES	NO	N/A
9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate	[✓]		
b. Blanks	[✓]		
ACTION: If any TIC data are missing, take action specified in 3.2 above.			
ACTION: Add "JN" qualifier if missing.			
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene a VOA TCL - and should not be reported as a TIC)?		[✓]	
ACTION: Flag with "R" any TCL compound listed as a TIC.			
9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	[✓]		
ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (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. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[✓]	___
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 document effect in data assessments.

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" and it's associated value on the original Form I and substituting the data from the analysis of the 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 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant, Reports) present for initial and continuing calibration?	[✓]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

	YES	NO	N/A

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? [✓] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are response factors stable for BNAs over the concentration range of the calibration? (% Relative standard deviation (%RSD) < 30.0%) [✓] ___ ___

ACTION: Circle all outliers in red.

NOTE: Although 20 BNA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If the % RSD is > 30.0%, qualify positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detect results for that analyte R (unusable).

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are all BNA compound RRFs > 0.05? [✓] ___ ___

ACTION: Circle all outliers in red.

ACTION: If any RRF < 0.05
1. "R" all non-detects.
2. "J" all positive results.

12.4 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % RSD? (Check at least two values but if errors are found, check more.) ___ [✓] ___

ACTION: Circle Errors in red.

YES NO N/A

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors in data assessments.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? [✓] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [✓] ___ ___

ACTION: List below all sample analyses that were not within twelve hours of a continuing calibration analysis for each instrument used.

_____

_____

_____

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/ resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any semivolatile compounds have a % Difference (% D) between the initial and continuing RRF which exceeds the + 25.0% criteria? ✓ ___ [✓] ___ 04-92

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated (J). When %D is above 90%, reject all non-detects for that analyte (R) unusable.

	YES	NO	N/A
13.4 Do any semivolatile compounds have a RRF <0.05?	___	[✓]	___

ACTION: Circle all outliers in red.

ACTION: If RRF <0.05, qualify as unusable (R) associated non-detects and "J" associated positive values.

13.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more).	___	[✓]	___

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration?	[ ]	[✓]	___

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
27-001-S001	chrysene d12	53358	13008	52030
	perylene-d12	49829	8561	34242
13-001-B001DL	chrysene d12	54954	13008	52030
	perylene d12	50849	8561	34242

(Attach additional sheets if necessary.)

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard.

14. Internal Standards (Form VIII) continued

Sample #	Internal Std	Area	Lower Limit	Upper Limit
27-001-S001MS	Acenaphthene-d10	63902	15850	63400
	phenanthrene-d10	93740	20988	83952
	Chrysene-d12	66141	13008	52030
	perylene-d12	60055	8561	34242
27-001-S001MSD	phenanthrene-d10	86103	20988	83952
	Chrysene-d12	58328	13008	52030
	perylene-d12	56050	8561	34242

	YES	NO	N/A

2. Non-detects associated with IS areas > 100% should not be qualified.

3. If the IS area is below the lower limit (<50%), qualify all associated non-detects (U-values) "J". If extremely low area counts are reported (<25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable (R).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for BNA 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.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92066618 SDG No. 13-001-0001 LABORATORY RFW SITE Coltsneck

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), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Daniel J. Hall Date: 08/04/1992

Verified By:_____ Date:___/_____/199__

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 whose holding time has been exceeded 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 analytes in the samples shown were qualified because of holding time:

13-001-B001 exceeded by 9 days
13-001-B01
13-002-D001
27-001-S001
27-001-S001 MS
27-001-S001 MSD
27-001-S002

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse 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 and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (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

SB1K 92LE0943 soil
Di-n-butylphalate 41 330
bis(2ethylhexyl)phthalate 150 330
TICs 1 - 5.07
2 - 5.40
3 - 5.57
4 - 5.88
5 - 21.98
6 - 22.55

SB1K 92LE0850 water
Di-n-butylphthalate 3 10
bis(2ethylhexyl)phthalate 10 10
TICs
1 - 5.54
2 - 6.08
3 - 21.34
4 - 23.46
5 - 27.26

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

not identified

C) Trip blank contamination

NONE

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl- phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning:

NONE

DATA ASSESSMENT

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/BNA Target Compound List (TCL) must be $\geq$ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor <0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All non-detects for those compounds will be rejected ("R"). The following analytes in the samples shown were qualified because of response factor:

none

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 of the continuing calibration check 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 %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

Continuing M070203

27-001-S201
~~N-nitroso-diphenyl~~
n-nitroso-di-n propylamine *
Hexachloroethane *
4-nitrophenol
n-nitrosodiphenylamine
butylbenzyl phthalate
bis(ethylhexyl)phthalate
~~3-benzidine~~
3,3'-dichlorobenzidine
Di-n-octyl phthalate
Benzo(b)fluoranthene *
2,4,6-Tribromophenol

Continuing S070702

Acenaphthene *
2,4-dinitrophenol
4-nitrophenol
4-nitroaniline
4,6-dinitro-2-methylphenol
benzo(b)fluoranthene *
2,4,6-Tribromophenol

SBLKLE0943
SBLKLE0943-BS
13-002-D001
13-001-B001

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

27-001-S201 Terphenyl-d_{14} 162% NA

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ" only if IS area is < 50%. Non detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

27-001-S001MS	Acenaphthene-d_{10}
	phenanthrene-d_{10}
	Chrysene - d_{12}
	perylene - d_{12}
27-001-S001MSD	phenanthrene-d_{10}
	Chrysene - d_{12}
	perylene - d_{12}
27-001-S001	Chrysene - d_{12}
	perylene - d_{12}
13001-B001DL	Chrysene - d_{12}
	perylene - d_{12}

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. 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 intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

none

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

NA

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 data. The following analytes, for the samples shown, were qualified because of MS/MSD:

NONE

22-001-S001 MS/MSD

2,4-dinitrotoluene 90/97 28-89 NA

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

NONE

SB1KLE0850-MB1	BS/BSD		
4-nitrophenol	118/119	10-80	NA
pentachlorophenol	147	9-103	NA
pentachloophenol	RPD 51	50	NA

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

fair

12. CONTRACTUAL 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:

13-001-B001DL
27-001-S001DL

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

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

Data Validation Report

Pesticide/Aroclors

August 12, 1992

Prepared for

Roy F. Weston, Inc.
Weston Way
West Chester, PA 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy program June 10, 1992 at the **NWS Earle - ColtsNeck, NJ** site. There was one (1) water sample with no MS/MSD and five (5) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratory - Lionville in this analytical batch, **RFW Lot# 9206L618.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Pesticide/Aroclor fraction has been validated utilizing: the "National Functional Guidelines For Organic Data Review, Multi-Media, Multi-Concentration (OLM01.0) and Low Concentration Water (OLC01.0), Draft December 1990, Revised June 1991; Region II SOP No. HW-6, Revision 8, January 1992; NEESA Level D requirements; and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Roy F. Weston, Inc.

Sample Identifications		Analytical Fraction	
FIELD ID	**LABORATORY ID**	**Matrix**	**PEST**
13-001-B001	9206L618-001	SOIL	X
13-002-B001DL	9206L618-001DL	SOIL	X
13-002-D001	9206L618-002	SOIL	X
27-001-S001	9206L618-006	SOIL	X
27-001-S001MS	9206L618-006MS	SOIL	X
27-001-S001MSD	9206L618-006MSD	SOIL	X
27-001-S002	9206L618-007	SOIL	X
29-001-S001	9206L618-009	SOIL	X
27-001-S201	9206L618-010	WATER	X

MS - Matrix Spike MSD - Matrix Spike Duplicate

Individual fractions were reviewed as follows:

	Primary	Secondary
PEST - CLP Pesticide/Aroclors 3/90 SOW	Chris Scarpellino	Paul Humburg

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR 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.

One (1) water sample with no MS/MSD and five (5) soil samples with one (1) MS/MSD were included in this analytical data package, **RFW Lot # 9206L618.** The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in the EPA CLP OLM01.6 Statement of Work, dated June 1991, the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91, and the Region II SOP HW-6, Revision 8, 1/92. 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 U.S. EPA CLP. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results.

In general, the chromatography for these samples was good. The data package presented contained relatively minor contractual and technical deficiencies.

Contractual Non-Compliance

The laboratory is apparently using 0.5 uL injection volumes rather than the SOW specified 1.0 or 2.0 Ul volumes. This non-standard injection volume, apparently obtained by a split 1.0 uL injection, does not appear to adversely impact the reported results.

The laboratory did not include control limits or control charts in this data package for the reported Blank Spikes, as required by the NEESA QA Protocol. CLP control limits were reported for the blank spikes rather than performance-based statistical limits.

Holding Times

Extraction and analysis hold times were met for all samples.

GC Instrument Performance

The GC column resolution requirements were apparently met for both of the columns in both sequences utilized for analyses included in this package.

Surrogate retention times were all within QC limits and all compounds in all analytical standards fell within the laboratory reported Retention Time Windows (RTWs).

No Endrin or 4,4'-DDT Breakdowns exceeded the QC limit.

No qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations both columns in both sequences were acceptably linear. No qualifications were required based on the initial calibrations.

Continuing Calibrations

One continuing calibration standard associated with the reported samples contained one compound which exceeded the QC limits.

Specific Finding

1. The RPD for Methoxychlor in continuing calibration PEM 11-84 6/24/92 0437 slightly exceeded the QC limit. All positive and non-detect results for this compound are qualified in the following samples: 13-002-D001, 27-001-S001, and 27-001-S002.

Blanks

No confirmed positive results were reported by the laboratory or identified by the reviewer for either the water or the soil Method Blank.

Instrument Blanks showed no significant peaks within target compound retention time windows. Minor peaks were identified one column or the other. No qualifications were required.

Sulfur cleanup blanks were not required because sulfur cleanup was not performed on any of the samples.

Florisil and GPC QC Checks

All recoveries reported for the Florisil Check on Form 9A were within the required QC limits. No raw data for this analysis was identified in the data package. All recoveries reported for the GPC Calibration on Form 9B were within the required QC limits. No raw data for this analysis was identified in the data package.

Surrogate Recoveries

No samples showed three of the four reported surrogate recoveries (2 surrogates x 2 columns) which were outside the QC limits. No qualifications were required.

Matrix Spike/Matrix Spike Duplicate

Two % Recoveries for the soil MS/MSD were below QC limits. All RPDs for the soil MS/MSD were within QC limits. The soil blank spike recoveries were within EPA CLP limits. The water BS/BSD were all within EPA CLP QC limits for Recoveries and RPDs. No qualifications were required.

Analyte Identification/Quantitation

Many positive results were reported for these samples for target analytes. The reviewer has exercised sample-by-sample and analyte-by-analyte discretion for the qualification or rejection of results based on quantitative differences between the columns, while utilizing the Region II guidelines: 25-50% - "J"; 50-90% - "NJ"; and >90% - "R". However, the reviewer assumes that strict rejection of results reported near or below the CRQL due to high %Ds is unwarranted.

2. The reported positive result for the analyte is qualified as quantitatively estimated, "J", due to differences in the column quantitations (25-50%).

3. The reported positive result for the analyte is qualified as tentatively identified at an estimated concentration, "NJ", due to a significant discrepancy between the column quantitations (50-90%).

4. The reported positive result for the analyte is rejected "R" and may be replaced by the sample result value reported as "U" or "UJ", or the CRQL, whichever is greater, due to significant quantitative differences between the column quantitations (>90%).

Sample 29-001-S001 contained numerous large peaks but no pattern was recognized.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
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 concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDING
13-002-D001, 27-001-S001, and 27-001-S002	Methoxychlor	+/U	J/UJ	1
All	All "P"	+	J	2
All	All "P"	+	NJ	3
All	All "P"	+	+U/UJ	4

* DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
QL denotes the qualifier(s) used by Validator
+ in the QL column denotes a validator revised result

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET 0000022

CLIENT SAMPLE NO.

13-001-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL — Lab Sample ID: 9206L618-001

Sample wt/vol: 30.0 (g/mL) G — Lab File ID: 06229235.31

% Moisture: 12. decanted: (Y/N)_ — Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC — Date Extracted: 06/15/92

Concentrated Extract Volume: 5000(uL) — Date Analyzed: 06/23/92

Injection Volume: 0.5(uL) — Dilution Factor: 2.00

GPC Cleanup: (Y/N) Y pH: 6.8 — Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	3.8	U	
319-85-7	Beta-BHC	3.8	U	
319-86-8	Delta-BHC	3.8	U	
58-89-9	gamma-BHC (Lindane)	3.8	U	
76-44-8	Heptachlor	3.8	U	
309-00-2	Aldrin	3.8	U	
1024-57-3	Heptachlor epoxide	6.1 ~~0.76~~	~~JP~~	UJ 4
959-98-8	Endosulfan I	3.8	U	
60-57-1	Dieldrin	7.6	U	
72-55-9	4,4'-DDE	~~4.9~~	~~JP~~	RDOR 4 7/15/92
72-20-8	Endrin	7.6	U	
33213-65-9	Endosulfan II	~~4.6~~	~~JP~~	R 4
72-54-8	4,4'-DDD	~~16~~	~~P~~	R 4
1031-07-8	Endosulfan sulfate	7.6	U	
50-29-3	4,4'-DDT	~~75~~	~~P~~	R 4
72-43-5	Methoxychlor	38	U	
53494-70-5	Endrin ketone	7.6	U	
7421934	Endrin aldehyde	7.6	U	
5103-71-9	alpha-Chlordane	3.8 ~~0.76~~	~~JP~~	UJ 4
5103-74-2	gamma-Chlordane	3.8	U	
8001-35-2	Toxaphene	380	U	
12674-11-2	Aroclor-1016	76	U	
11104-28-2	Aroclor-1221	150	U	
11141-16-5	Aroclor-1232	76	U	
53469-21-9	Aroclor-1242	76	U	
12672-29-6	Aroclor-1248	76	U	
11097-69-1	Aroclor-1254	76	U	
11096-82-5	Aroclor-1260	300		

FORM 1 PEST 03/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET 0000031

CLIENT SAMPLE NO.

13-001-B001DL

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-001 DL

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.45

% Moisture: 12. decanted: (Y/N)_

Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/15/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/27/92

Injection Volume: 0.5(uL)

Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 6.8

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	38	U
319-85-7	Beta-BHC	38	U
319-86-8	Delta-BHC	38	U
58-89-9	gamma-BHC (Lindane)	38	U
76-44-8	Heptachlor	38	U
309-00-2	Aldrin	38	U
1024-57-3	Heptachlor epoxide	38	U
959-98-8	Endosulfan I	38	U
60-57-1	Dieldrin	76	U
72-55-9	4,4'-DDE	76	U
72-20-8	Endrin	76	U
33213-65-9	Endosulfan II	76	U
72-54-8	4,4'-DDD	76	U
1031-07-8	Endosulfan sulfate	76	U
50-29-3	4,4'-DDT	52	P
72-43-5	Methoxychlor	380	U
53494-70-5	Endrin ketone	76	U
7421934	Endrin aldehyde	76	U
5103-71-9	alpha-Chlordane	38	U
5103-74-2	gamma-Chlordane	38	U
8001-35-2	Toxaphene	3800	U
12674-11-2	Aroclor-1016	760	U
11104-28-2	Aroclor-1221	1500	U
11141-16-5	Aroclor-1232	760	U
53469-21-9	Aroclor-1242	760	U
12672-29-6	Aroclor-1248	760	U
11097-69-1	Aroclor-1254	760	U
11096-82-5	Aroclor-1260	760	U

DDR 7/15/92

FORM 1 PEST 03/90

1D

0000038

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

13-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-002

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06229235.25

% Moisture: 22. decanted: (Y/N)_

Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/15/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/23/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.5

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	2.1	U	
319-85-7	Beta-BHC	2.1	U	
319-86-8	Delta-BHC	2.1	U	
58-89-9	gamma-BHC (Lindane)	2.1	U	
76-44-8	Heptachlor	0.43	JP	
309-00-2	Aldrin	2.1	U	
1024-57-3	Heptachlor epoxide	2.1	U	
959-98-8	Endosulfan I	2.1	U	
60-57-1	Dieldrin	4.3	U	
72-55-9	4,4'-DDE	4.3 ~~0.86~~	~~JP~~	UJ 4
72-20-8	Endrin	4.3	U	DDR 7/15/92
33213-65-9	Endosulfan II	4.3	U	
72-54-8	4,4'-DDD	~~0.43~~	~~JP~~	R 4
1031-07-8	Endosulfan sulfate	4.3	U	
50-29-3	4,4'-DDT	~~0.86~~	~~JP~~	R 4
72-43-5	Methoxychlor	21	U	UJ 1
53494-70-5	Endrin ketone	4.3	U	
7421934	Endrin aldehyde	4.3	U	
5103-71-9	alpha-Chlordane	2.1	U	
5103-74-2	gamma-Chlordane	2.1	U	
8001-35-2	Toxaphene	210	U	
12674-11-2	Aroclor-1016	43	U	
11104-28-2	Aroclor-1221	85	U	
11141-16-5	Aroclor-1232	43	U	
53469-21-9	Aroclor-1242	43	U	
12672-29-6	Aroclor-1248	43	U	
11097-69-1	Aroclor-1254	43	U	
11096-82-5	Aroclor-1260	42	J	

FORM 1 PEST 03/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET 0000045

CLIENT SAMPLE NO.

27-001-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-006

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06229235.26

% Moisture: 11. decanted: (Y/N)

Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/15/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/23/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	1.9	U	
319-85-7	Beta-BHC	1.9	U	
319-86-8	Delta-BHC	1.9	U	
58-89-9	gamma-BHC (Lindane)	1.9	U	
76-44-8	Heptachlor	1.9	U	
309-00-2	Aldrin	1.9	U	
1024-57-3	Heptachlor epoxide	1.9	U	
959-98-8	Endosulfan I	0.75	~~JP~~	J DOR 2
60-57-1	Dieldrin	3.7	U	
72-55-9	4,4'-DDE	~~7.9~~	~~P~~	R 7/15/92 4
72-20-8	Endrin	3.7	U	
33213-65-9	Endosulfan II	3.7	U	
72-54-8	4,4'-DDD	~~5.6~~	~~P~~	R 4
1031-07-8	Endosulfan sulfate	3.7	U	
50-29-3	4,4'-DDT	~~16~~	~~P~~	R 4
72-43-5	Methoxychlor	19	U	UJ 1
53494-70-5	Endrin ketone	3.7	U	
7421934	Endrin aldehyde	3.7	U	
5103-71-9	alpha-Chlordane	1.9	U	
5103-74-2	gamma-Chlordane	1.9	U	
8001-35-2	Toxaphene	190	U	
12674-11-2	Aroclor-1016	37	U	
11104-28-2	Aroclor-1221	75	U	
11141-16-5	Aroclor-1232	37	U	
53469-21-9	Aroclor-1242	37	U	
12672-29-6	Aroclor-1248	37	U	
11097-69-1	Aroclor-1254	37	U	
11096-82-5	Aroclor-1260	400	~~P~~	J 2

FORM 1 PEST 03/90

1D 000366 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

27-001-S001MS

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL — Lab Sample ID: 9206L618-006 MS

Sample wt/vol: 30.0 (g/mL) G — Lab File ID: 06259235.43

% Moisture: 11. decanted: (Y/N) _ — Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC — Date Extracted: 06/15/92

Concentrated Extract Volume: 5000 (uL) — Date Analyzed: 06/27/92

Injection Volume: 0.5 (uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4 — Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	1.9	U	
319-85-7	Beta-BHC	1.9	U	
319-86-8	Delta-BHC	1.9	U	
58-89-9	gamma-BHC (Lindane)	78.0	%	
76-44-8	Heptachlor	76.0	%	J 2
309-00-2	Aldrin	70.0	%	
1024-57-3	Heptachlor epoxide	1.9	U	
959-98-8	Endosulfan I	1.9	U	
60-57-1	Dieldrin	74.0	%	
72-55-9	4,4'-DDE	5.6		DOE 7/15/92
72-20-8	Endrin	72.0	%	
33213-65-9	Endosulfan II	3.7	U	
72-54-8	4,4'-DDD	8.6 ~~3.4~~	~~JP~~	UJ 4
1031-07-8	Endosulfan sulfate	3.7	U	
50-29-3	4,4'-DDT	32.0	%	J 2
72-43-5	Methoxychlor	19	U	
53494-70-5	Endrin ketone	3.7	U	
7421934	Endrin aldehyde	3.7	U	
5103-71-9	alpha-Chlordane	1.9	U	
5103-74-2	gamma-Chlordane	1.9	U	
8001-35-2	Toxaphene	190	U	
12674-11-2	Aroclor-1016	37	U	
11104-28-2	Aroclor-1221	75	U	
11141-16-5	Aroclor-1232	37	U	
53469-21-9	Aroclor-1242	37	U	
12672-29-6	Aroclor-1248	37	U	
11097-69-1	Aroclor-1254	37	U	
11096-82-5	Aroclor-1260	85	~~P~~	J 2

%: SPIKE COMPOUND FORM 1 PEST 03/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET 000375

CLIENT SAMPLE NO.

27-001-S001MSD

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL — Lab Sample ID: 9206L618-006 MSD

Sample wt/vol: 30.0 (g/mL) G — Lab File ID: 06259235.44

% Moisture: 11. decanted: (Y/N)_ — Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC — Date Extracted: 06/15/92

Concentrated Extract Volume: 5000(uL) — Date Analyzed: 06/27/92

Injection Volume: 0.5(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4 — Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	1.9	U	
319-85-7	Beta-BHC	1.9	U	
319-86-8	Delta-BHC	1.9	U	
58-89-9	gamma-BHC (Lindane)	78.0	%	
76-44-8	Heptachlor	78.0	%	J 2
309-00-2	Aldrin	~~2.00~~	~~%~~	R 4
1024-57-3	Heptachlor epoxide	1.9	U	
959-98-8	Endosulfan I	1.9	U	
60-57-1	Dieldrin	75.0	%	
72-55-9	4,4'-DDE	4.9		
72-20-8	Endrin	73.0	%	
33213-65-9	Endosulfan II	3.7	U	
72-54-8	4,4'-DDD	3.4	~~JP~~ NJ	DER 7/15/92 3
1031-07-8	Endosulfan sulfate	3.7	U	
50-29-3	4,4'-DDT	9.00	%	
72-43-5	Methoxychlor	19	U	
53494-70-5	Endrin ketone	3.7	U	
7421934	Endrin aldehyde	3.7	U	
5103-71-9	alpha-Chlordane	1.9	U	
5103-74-2	gamma-Chlordane	1.9	U	
8001-35-2	Toxaphene	190	U	
12674-11-2	Aroclor-1016	37	U	
11104-28-2	Aroclor-1221	75	U	
11141-16-5	Aroclor-1232	37	U	
53469-21-9	Aroclor-1242	37	U	
12672-29-6	Aroclor-1248	37	U	
11097-69-1	Aroclor-1254	37	U	
11096-82-5	Aroclor-1260	51	~~P~~ J	2

%: SPIKE COMPOUND FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

27-001-S002

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L618-007

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06229235.27

% Moisture: 5.7 decanted: (Y/N)

Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/15/92

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 06/23/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.6

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	1.8	U	
319-85-7	Beta-BHC	1.8	U	
319-86-8	Delta-BHC	1.8	U	
58-89-9	gamma-BHC (Lindane)	1.8	U	
76-44-8	Heptachlor	1.8	U	
309-00-2	Aldrin	1.8	U	
1024-57-3	Heptachlor epoxide	1.8	U	
959-98-8	Endosulfan I	1.8	U	
60-57-1	Dieldrin	3.5	U	
72-55-9	4,4'-DDE	3.5 ~~0.35~~	~~JP~~	DOR UJ 7/15/92 4
72-20-8	Endrin	3.5	U	
33213-65-9	Endosulfan II	3.5	U	
72-54-8	4,4'-DDD	3.5	U	
1031-07-8	Endosulfan sulfate	3.5	U	
50-29-3	4,4'-DDT	3.5 ~~0.71~~	~~JP~~	UJ 4
72-43-5	Methoxychlor	18	U	
53494-70-5	Endrin ketone	3.5	U	
7421934	Endrin aldehyde	3.5	U	
5103-71-9	alpha-Chlordane	1.8	U	
5103-74-2	gamma-Chlordane	1.8	U	
8001-35-2	Toxaphene	180	U	
12674-11-2	Aroclor-1016	35	U	
11104-28-2	Aroclor-1221	71	U	
11141-16-5	Aroclor-1232	35	U	
53469-21-9	Aroclor-1242	35	U	
12672-29-6	Aroclor-1248	35	U	
11097-69-1	Aroclor-1254	35	U	
11096-82-5	Aroclor-1260	35	U	

1D 0000060 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

29-001-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL — Lab Sample ID: 9206L618-009

Sample wt/vol: 30.0 (g/mL) G — Lab File ID: 06229235.24

% Moisture: 7.0 decanted: (Y/N)_ — Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) SONC — Date Extracted: 06/15/92

Concentrated Extract Volume: 5000(uL) — Date Analyzed: 06/23/92

Injection Volume: 0.5(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2 — Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	1.8	U	
319-85-7	Beta-BHC	1.8	U	
319-86-8	Delta-BHC	1.8	U	
58-89-9	gamma-BHC (Lindane)	4.7 ~~1.1~~	~~JP~~	UJ 4
76-44-8	Heptachlor	5.0 ~~1.1~~	~~P~~	UJ
309-00-2	Aldrin	1.8	U	
1024-57-3	Heptachlor epoxide	1.8	U	
959-98-8	Endosulfan I	1.8	U	
60-57-1	Dieldrin	6.1 ~~1.4~~	~~JP~~	UJ 4
72-55-9	4,4'-DDE	7.5 ~~1.1~~	~~JP~~	UJ 4
72-20-8	Endrin	3.6	U	
33213-65-9	Endosulfan II	3.6 ~~0.36~~	~~JP~~	UJ 4
72-54-8	4,4'-DDD	9.3 ~~3.9~~	~~P~~	UJ 4
1031-07-8	Endosulfan sulfate	3.6	U	
50-29-3	4,4'-DDT	2.5	~~JP~~	NJ 3
72-43-5	Methoxychlor	18	U	
53494-70-5	Endrin ketone	3.6	U	
7421934	Endrin aldehyde	3.6	U	
5103-71-9	alpha-Chlordane	1.8	U	
5103-74-2	gamma-Chlordane	1.8	U	
8001-35-2	Toxaphene	180	U	
12674-11-2	Aroclor-1016	36	U	
11104-28-2	Aroclor-1221	72	U	
11141-16-5	Aroclor-1232	36	U	
53469-21-9	Aroclor-1242	36	U	
12672-29-6	Aroclor-1248	36	U	
11097-69-1	Aroclor-1254	36	U	
11096-82-5	Aroclor-1260	36	U	

DOR 4 7/13/92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

27-001-S201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER — Lab Sample ID: 9206L618-010

Sample wt/vol: 960 (g/mL) ML — Lab File ID: 06229235.21

% Moisture: decanted: (Y/N)_ — Date Received: 06/10/92

Extraction: (SepF/Cont/Sonc) CONT — Date Extracted: 06/15/92

Concentrated Extract Volume: 10000.00(uL) — Date Analyzed: 06/23/92

Injection Volume: 0.5(uL) — Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q	
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	DDR 7/15/92
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	UJ 1
53494-70-5	Endrin ketone	0.10	U	
7421934	Endrin aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.052	U	
5103-74-2	gamma-Chlordane	0.052	U	
8001-35-2	Toxaphene	5.2	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.1	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92062618 LAB: Roy F. Weston - Lionville

SITE: NWS Earle - Colts Neck, NJ

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 SDG Narrative

2.: Is the Narrative or Cover Letter Present?	[✓]	___	___
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 ANALYSIS

1.0 Traffic Reports and Laboratory Narrative

1.1 Are 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 SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data?	___	[ ]	___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be qualified as estimated (J). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded?	___	[✓]	___

Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

	YES	NO	N/A

ACTION: If technical holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits (UJ) and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable (R).

3.0 Surrogate Recovery (Form II)

	YES	NO	N/A
3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices?			
a. Low Water	[✓]	___	___
b. Soil	[✓]	___	___
3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices?			
a. Low Water	[✓]	___	___
b. Soil	[✓]	___	___

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

	YES	NO	N/A
3.3 Were outliers marked correctly with an asterisk?	[✓]	___	___

ACTION: Circle all outliers in red.

	YES	NO	N/A
3.4 Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample or blank? (60-150%)	✓	[ ]	___

2E

WATER PESTICIDE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 1771-15-04-0000

Case No.: NAVAL WEAPONS/COLTSNECK RFW Lot No.: 9206L618

GC Column(1): DB608 ID: 0.53(mm) GC Column(2): DB1701 ID: 0.53(mm)

	CLIENT SAMPLE NO.	TCX1 %REC #	TCX2 %REC #	DCB1 %REC #	DCB2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	27-001-S201	85	55*	65	60			1
02	PBLKLE0857-MB1	65	60	45*	45*			2
03	PBLKLE0857-MB1 BS	65	70	70	65			0
04	PBLKLE0857-MB1 BSD	75	90	55*	50*			2

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 1771-15-04-0000

Case No.: NAVAL WEAPONS/COLTSNECK RFW Lot No.: 9206L618

GC Column(1): DB608 ID: 0.53(mm) GC Column(2): DB1701 ID: 0.53(mm)

	CLIENT SAMPLE NO.	TCX1 %REC #	TCX2 %REC #	DCB1 %REC #	DCB2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	13-001-B001	88	102	148	62			0
02	13-001-B001DL	115	128	228*	105			1
03	13-002-D001	118	130	115	122			0
04	27-001-S001	90	102	108	108			0
05	27-001-S001MS	78	88	92	88			0
06	27-001-S001MSD	78	105	88	88			0
07	27-001-S002	85	92	88	92			0
08	29-001-S001	108	90	88	88			0
09	PBLKLE0852-MB1	95	108	105	105			0
10	PBLKLE0852-MB1 BS	72	80	80	80			0

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

	YES	NO	N/A

ACTION: No qualification is done if surrogates are diluted out. If recovery for both surrogates is below the contract limit, but above 10%, flag all results for that sample 'J". If recovery is < 10% for either surrogate, qualify positive results 'J" and flag non-detects "R". If recovery is above the contract advisory limits for both surrogates qualify positive values "J".

No Qualifications required

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A? [✓] ___ ___

ACTION: If the RT limits are not met, the analysis may be qualified unusable (R) for that sample on the basis of professional judgement.

3.6 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 document effect in data assessments.

4.0 Matrix Spikes (Form III)

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

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices? (1 MS/MSD must be performed for every 20 samples of similar matrix or concentration level)

a. Low Water BS/BSD [✓] ___ ___

b. Soil [✓] ___ ___

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

YES NO N/A

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

Water BS/BSD	Soil
0 out of 12	2 out of 12

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

Water BS/BSD	Soil
0 out of 6	2 out of 6

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

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 PCB TCL compounds, has a reagent/ method blank been analyzed for each SDG or every 20 samples of similar matrix or concentration or each extraction batch, whichever is more frequent? [✓] ___ ___

ACTION: If any blank data are missing, take the action specified above in 3.2. If blank data is not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence? (minimum contract requirement)

YES NO N/A

ACTION: If any blank data are missing, call lab for explanation/resubmittals. If missing deliverables are unavailable, document the effect in data assessments.

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

6.1 Do any method/instrument/reagent/cleanup 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 and corrected for % moisture when necessary. ___ [✓] ___

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) Assume water is field/rinse blank

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, or calibration QC problems.

YES NO N/A

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

Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5x blank value
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as unusable (R).

Probably water sample is field blank

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 Systems Printouts for both columns present for all samples, blanks, MS/MSD?

a. peak resolution check [✓] ___ ___

b. performance evaluation mixtures [✓] ___ ___

c. aroclor 1016/1260 [✓] ___ ___

d. aroclors 1221, 1232, 1242, 1248, 1254 [✓] ___ ___

e. toxaphene [✓] ___ ___

f. low points individual mixtures A & B [✓] ___ ___

g. med points individual mixtures A & B [✓] ___ ___

h. high points individual mixtures A & B [✓] ___ ___

	YES	NO	N/A
i. instrument blanks	[✓]	___	___

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

7.2 Are Forms VI - PEST 1-4 present and complete for each column and each analytical sequence?	[✓]	___	___

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

7.3 Are there any transcription/calculation errors between raw data and Forms VI?	___	[✓]	___

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

7.4 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the initial calibration analytical sequence? (For Initial Calibration Standards, Form VI - PEST - 1).	[✓]	___	___

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).
For aroclors, RT may be outside the RT window, but the aroclor may still be identified from the individual pattern.

7.5 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (% RSD must be < 20.0% for all analytes except for the 2 surrogates, which must not exceed 30.0 % RSD). See Form VI PEST - 2.	[✓]	___	___

	YES	NO	N/A
ACTION: If no, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When RSD >90%, flag all non-detect results for that analyte R (unusable).			
7.6 Is the resolution between any two adjacent peaks in the Resolution Check Mixture > 60.0% for both columns? (Form VI-PEST - 4)	[✓]	___	___
ACTION: If no, positive results for compounds that were not adequately resolved should be qualified "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).			
7.7 Is Form VII - Pest-1 present and complete for each Performance Evaluation Mixture analyzed during the analytical sequence for both columns?	[✓]	___	___
ACTION: If no, take action as specified in 3.2 above.			
7.8 Has the individual % breakdown exceeded 20.0% on either column.	___	[✓]	___
- for 4,4' - DDT?	___	[✓]	___
- for endrin?	___	[✓]	___
Has the combined % breakdown for 4,4'- DDT/ Endrin exceeded 30.0% on either column? (required in all instances)	___	[✓]	___

ACTION: 1. If any % breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (p. D-38/Pest SOW 3/90), qualify all sample analyses in the entire analytical sequence as described below.

YES NO N/A

2. If any % breakdown has failed the QC criteria in a PEM Verification calibration, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM & qualify the data as described below.

a. 4,4'-DDT Breakdown: If 4,4'-DDT breakdown is greater than 20.%:

   i. Qualify all positive results for DDT with 'J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

   ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

b. Endrin Breakdown: If endrin breakdown is greater than 20.0%:

   i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R).

   ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ).

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

   i. Qualify all positive results for DDT and endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R). If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

YES NO N/A

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ). Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

7.9 Are the relative percent difference (RPD) values for all PEM analytes <25.0%? (Form VII-PEST-1) [ ] [✓] ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

Methoxychlor
PEM 11-84
6/24/93 0437
Qualify in samples
27-001-S001
27-001-S001
13-002-D001
27-001-S002

NOTE: If the failing PEM is part of the initial calibration. all samples are potentially affected. If the offending standard is a verification calibration, the associated samples are those which followed the last in-control standard until the next passing standard.

7.10 Have all samples been injected within a 12 hr. period beginning with the injection of an Instrument Blank? [✓] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly.

7.11 Is Form VII - Pest-2 present and complete for each INDA and INDB Verification Calibration analyzed? [✓] ___ ___

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

7.12 Are there any transcription/calculation errors between raw data and Form VII - Pest-2? ___ [✓] ___

ACTION: If large errors exists, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments. under "Conclusions".

	YES	NO	N/A
7.13 Do all standard retention times for each INDA and INDB Verification Calibration fall within the windows established by the initial calibration sequence?	✓		

ACTION: If no, beginning with the samples which followed 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 the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).

7.14 Are RPD values for all verification calibration standard compounds < 25.0%?	✓		

ACTION: If the RPD is >25.0% for the compound being quantitated, qualify all associated positive results "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte which failed the criteria. If the RPD is >90%, flag all non-detects for that analyte R (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses?	✓		

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

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses? (see CLP SOW p. D-39 & D-41/PEST)	✓		

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

	YES	NO	N/A

9.0 Cleanup Efficiency Verification (Form IX)

9.1 Is Form IX - Pest-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.) [✓] ___ ___

ACTION: If no, take action specified in 3.2 above. If data suggests that florisil cleanup was not performed, make note in "Contract Problems/Non-Compliance".

9.2 Are all samples listed on the Pesticide Florisil Cartridge Check Form? [✓] ___ ___

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

9.3 If GPC Cleanup was performed, (mandatory for all soil sample extracts) is Form IX - Pest-2 present? [✓] ___ ___

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

ACTION: If GPC was not performed when required, make note in" Contract Problems/Non-Compliance" section of data assessment.

9.4 Are percent recoveries (% R) of the pesticide and surrogate compounds used to check the efficiency of the cleanup procedures within QC limits:

80-120% for florisil cartridge check? [✓] ___ ___

80-110% for GPC calibration? [✓] ___ ___

Qualify only the analyte(s) which fail the recovery criteria as follows:

ACTION: If % R are < 80%, qualify positive results "J" and quantitation limits "UJ". Non-detects should be qualified "R" if zero %R was obtained for pesticide compounds. Use professional judgement to qualify positive results if recoveries are greater than the upper limit.

	YES	NO	N/A

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Make note in Contract Problems/ Non-Compliance section of reviewer narrative.

NOTE: The raw data of the GPC Calibration Check analysis is evaluated for pattern similarity with previously run Aroclor standards.

10.0 Pesticide/PCB Identification

	YES	NO	N/A
10.1 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.			
10.2 Are there any transcription/calculation errors between raw data and Forms 6E, 6G, 7E, 7D, 8D, 9A, B, 10A.	___	[✓]	___
ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and note error under "Conclusions".			
10.3 Are retention times (RT) of sample compounds within the established RT windows for both analyses?	[✓]	___	___
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?	[✓]	___	✓
Action: Use professional judgement to qualify positive results which were not confirmed by GC/MS. Qualify as unusable (R) all positive results which were not confirmed by second GC column analysis. Also qualify as unusable (R) all positive results not meeting RT window unless associated standard compounds are similarly biased. (see Functional Guidelines) The reviewer should use professional judgement to assign an appropriate quantitation limit.			

YES NO N/A

10.4 Is the percent difference (% D) calculated for the positive sample results on the two GC columns < 25.0%? [ ] [✓] ___

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:

% Difference	Qualifier
25-50 %	J
50-90 %	JN
> 90 %	R

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the data assessment.

10.5 Check chromatograms for false negatives, especially the multiple peak compounds toxaphene and PCBs. Were there any false negatives? ___ [✓] ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed, qualify the data unusable (R).

11.0 Compound Quantitation and Reported Detection Limits

11.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found? ___ [✓] ___

NOTE: Single-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 whethera 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 approximated quantity (NJ). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

	YES	NO	N/A
11.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, % moisture?	[✓]	___	___

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

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.

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer can provide an approximated quantitation limit (UJ) for each affected compound.

12.0 Chromatogram Quality

12.1 Were baselines stable?	[✓]	___	___
12.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?	___	[✓]	___

ACTION: Address comments under System Performance of data assessment.

	YES	NO	N/A

13.0 Field Duplicates

13.1 Were any field duplicates submitted for PEST/PCB analysis? Not identified [ ] ___ ___

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.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92061618 SDG No. 13-001-B001 LABORATORY R. F. Weston Lionville 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), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: [signature] Date: 8/12/1992

Verified By:_____ Date:___/_____/199__

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 whose holding time has been exceeded 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 analytes in the samples shown were qualified because of holding time: None

No qualifications required

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse 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 and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (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

None — many peaks, none confirmed
> ½ CRQL
No qualifications required

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

No positive hits in water sample

C) Trip blank contamination

N/A

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 of the continuing calibration check 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 %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

All %RSDs on initial calibrations within QC limits.

The RPD for Methoxychlor in continuing calibration PEM91-84 6/24/92 0437 slightly exceeded the QC limit.

All + & U results for this compound are qualified in samples 27-001-S001, 27-001-S002 & 13-002-D001.

No other qualifications are required

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

No sample had three of the four reported surrogate recoveries outside the QC limit.
No qualifications required.

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. 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 intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

Many %Ds > 25%

Evaluated & noted on Form Is

Sample 29-001-5001 contained numerous large peaks but no recognizable multi-component pattern

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 data. The following analytes, for the samples shown, were qualified because of MS/MSD:

2 low recoveries for the soil MS/MSD

All soil BS recoveries OK

+

All water BS/BSD recoveries + RPDs OK

No qualifications required

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

NEESA Control Charts & Limits
Not present

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

good

12. CONTRACTUAL 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 sample required dilution.
13-001-B001
Concentrations to be used noted on Form Is

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

good

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

Data Validation Report

August 11, 1992

Prepared for

R. F. Weston
Weston Way
West Chester, PA. 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 12, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were five (5) soil samples and two (2) water sample which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L640.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The ~~S~~VOA CLP fraction has been validated utilizing method specific requirements, Region II SOP NO. HW-6, March, 1990 requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**VOA**
23-002-D001	9206L640-001	SOIL	X
23-002-D101	9206L640-002	SOIL	X
23-007-D001	9206L640-007	SOIL	X
23-007-D001RE	9206L640-007RE	SOIL	X
23-002-D201	9206L640-009	WATER	X
TRIP BLANK	9206L640-010	WATER	X
23-003-B001	9206L640-013	SOIL	X
23-003-B001RE	9206L640-013RE	SOIL	X
23-006-B001	9206L640-016	SOIL	X
23-006-B001RE	9206L640-016RE	SOIL	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Dan Heil	Gene Watson

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

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, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, Region II, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case# 9206L640

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW. No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %RSDs. The average RRFs for all of the compounds did not meet the initial calibration criteria minimum of RRFs.

Specific Findings:

1. The initial calibration analyzed on, 05/06/92, had the following compounds with RRFs less than 0.05. Qualifications are not required because no samples were analyzed following the calibration.

2-butanone

Initial Calibrations (continued)

Specific Findings:

2. The initial calibration analyzed on, 06/16/92, had the following compounds with %RSDs greater than 30% RSD. Qualifications are not required because no samples were analyzed following the calibration.

acetone

Continuing calibrations

The continuing calibrations that were analyzed with this data package required qualifications for non compliant %Ds and low RRFs.

Specific Findings

3. For the following samples listed below, the continuing calibration AK6I02, contained compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

VBLKLVK111	2-butanone
VBLKLVK111-BS	
23-002-D201	
TRIP BLANK	

4. For the following samples listed below, the continuing calibration R062002, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVR046	bromomethane *
23-007-D001	acetone
23-003-B001	
23-006-B001	* - denotes a calibration criteria compound

Continuing Calibrations (continued)

Specific Findings:

5. For the following samples listed below, the continuing calibration R062202, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J).

23-002-D001	chloromethane
23-002-D101	2-hexanone
23-007-D001RE	
23-003-B001RE	
23-006-B001RE	

6. For the following samples listed below, the continuing calibration R062202, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

23-002-D001	acetone
23-002-D101	
23-007-D001RE	
23-003-B001RE	
23-006-B001RE	

Internal Standards

All internal standard EICP areas did not meet the EICP internal standard area QA/QC criteria.

Specific Findings:

7. The samples listed below exhibited one (1) or more internal standard less than -50% of its associated internal standard. Qualify all positive results as estimated (J) and qualify all non detects as estimated (UJ).

23-007-D001	chlorobenzene-d_5
23-003-B001	chlorobenzene-d_5
23-006-B001	chlorobenzene-d_5

Internal Standards (continued)

Specific Findings:

7. The samples listed below exhibited one (1) or more internal standard less than -50% of its associated internal standard. Qualify all positive results as estimated (J) and qualify all non detects as estimated (UJ).

23-007-D001RE	chlorobenzene-d_5
23-003-B001RE	chlorobenzene-d_5
23-006-B001RE	chlorobenzene-d_5

Method Blanks

The method blanks that were analyzed exhibited contamination for acetone and/or methylene chloride. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific Findings:

8. The following samples have been qualified for blank contamination. The qualifications are for all the blanks.

<u>acetone - CRQL</u>
23-006-B001

<u>acetone - NA</u>
23-007-D001

<u>methylene chloride - CRQL</u>
23-002-D201

<u>methylene chloride - U</u>
TRIP BLANK

Trip Blanks

The trip blanks that were analyzed exhibited contamination for methylene chloride. The trip blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action. The trip blank contamination was attributed to the method blank contamination. No qualifications are required.

Surrogates

All of the surrogate recoveries for the samples were within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No MS/MSD analyzed for volatiles. No qualifications are required.

Blank Spike/Blank Spike Duplicate (BS/BSD)

The blank spike that was analyzed all recoveries were within the advisory limits. No qualifications are required.

Compound Identification/Quantitation

Specific Findings:

9. For the samples listed below reject (R) the re-extracted sample analysis and report the results from the original sample analysis.

   23-007-D001RE
   23-003-B001RE
   23-006-B001RE

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
VBLKLVR046 23-007-D001 23-003-B001 23-006-B001	bromomethane * acetone * - denotes a calibration criteria compound	+	J	4
23-002-D001 23-002-D101 23-007-D001RE 23-003-B001RE 23-006-B001RE	chloromethane 2-hexanone	+	J	5
23-002-D001 23-002-D101 23-007-D001RE 23-003-B001RE 23-006-B001RE	acetone	+/-	J/UJ	6
	all analytes for internal standards	+/-	J/UJ	7
23-007-D001	chlorobenzene-d_5			
23-003-B001	chlorobenzene-d_5			
23-006-B001	chlorobenzene-d_5			
23-007-D001RE	chlorobenzene-d_5			
23-003-B001RE	chlorobenzene-d_5			
23-006-B001RE	chlorobenzene-d_5			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
23-006-B001	acetone	+	CRQL	8
23-007-D001	acetone	+	NA	8
23-002-D201	methylene chloride	+	CRQL	8
TRIP BLANK	methylene chloride	+	U	8
23-007-D001RE 23-003-B001RE 23-006-B001RE	all analytes	+/-	R	9

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

1A 000030 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

23-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L640-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: R062208

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: not dec. 24 Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	26	J 6
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

1E

0000031

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

23-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062208

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 24

Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 0 0 0 3 9

CLIENT SAMPLE NO.

23-002-D101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L640-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: R062209

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: not dec. 27 Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	14	U
67-64-1	Acetone	38	J 6
75-15-0	Carbon Disulfide	14	U
75-35-4	1,1-Dichloroethene	14	U
75-34-3	1,1-Dichloroethane	14	U
540-59-0	1,2-Dichloroethene (total)	14	U
67-66-3	Chloroform	14	U
107-06-2	1,2-Dichloroethane	14	U
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	14	U
56-23-5	Carbon Tetrachloride	14	U
75-27-4	Bromodichloromethane	14	U
78-87-5	1,2-Dichloropropane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
79-01-6	Trichloroethene	14	U
124-48-1	Dibromochloromethane	14	U
79-00-5	1,1,2-Trichloroethane	14	U
71-43-2	Benzene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U
75-25-2	Bromoform	14	U
108-10-1	4-Methyl-2-pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-88-3	Toluene	14	U
108-90-7	Chlorobenzene	14	U
100-41-4	Ethylbenzene	14	U
100-42-5	Styrene	14	U
1330-20-7	Xylene (total)	14	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000040

CLIENT SAMPLE NO.

23-002-D101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062209

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 27

Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000045

CLIENT SAMPLE NO.

23-007-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT — Lab Sample ID: 9206L640-007

Sample wt/vol: 5.00 (g/mL) G — Lab File ID: R062013

Level: (low/med) LOW — Date Received: 06/12/92

% Moisture: not dec. 38 — Date Analyzed: 06/20/92

GC Column: DB624 ID: .53(mm) — Dilution Factor: 1.00

Soil Extract Volume: (uL) — Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	16	U
67-64-1	Acetone	27	~~B~~ 8
75-15-0	Carbon Disulfide	16	U
75-35-4	1,1-Dichloroethene	16	U
75-34-3	1,1-Dichloroethane	16	U
540-59-0	1,2-Dichloroethene (total)	16	U
67-66-3	Chloroform	16	U
107-06-2	1,2-Dichloroethane	16	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	16	U
56-23-5	Carbon Tetrachloride	16	U
75-27-4	Bromodichloromethane	16	U
78-87-5	1,2-Dichloropropane	16	U
10061-01-5	cis-1,3-Dichloropropene	16	U
79-01-6	Trichloroethene	16	U
124-48-1	Dibromochloromethane	16	U
79-00-5	1,1,2-Trichloroethane	16	U
71-43-2	Benzene	16	U
10061-02-6	trans-1,3-Dichloropropene	16	U
75-25-2	Bromoform	16	U 05 7
108-10-1	4-Methyl-2-pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	16	U
79-34-5	1,1,2,2-Tetrachloroethane	16	U
108-88-3	Toluene	16	U
108-90-7	Chlorobenzene	16	U
100-41-4	Ethylbenzene	16	U
100-42-5	Styrene	16	U
1330-20-7	Xylene (total)	16	U

FORM 1 VOA 3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-007-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-007

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062013

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 38

Date Analyzed: 06/20/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000053

CLIENT SAMPLE NO.

23-007-D001RE

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L640-007

Sample wt/vol: 5.00 (g/mL) G Lab File ID: R062210

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: not dec. 38 Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	U
74-83-9	Bromomethane	16	U
75-01-4	Vinyl Chloride	16	U
75-00-3	Chloroethane	16	U
75-09-2	Methylene Chloride	16	U
67-64-1	Acetone	61	B
75-15-0	Carbon Disulfide	16	U
75-35-4	1,1-Dichloroethene	16	U
75-34-3	1,1-Dichloroethane	16	U
540-59-0	1,2-Dichloroethene (total)	16	U
67-66-3	Chloroform	16	U
107-06-2	1,2-Dichloroethane	16	U
78-93-3	2-Butanone	16	U
71-55-6	1,1,1-Trichloroethane	16	U
56-23-5	Carbon Tetrachloride	16	U
75-27-4	Bromodichloromethane	16	U
78-87-5	1,2-Dichloropropane	16	U
10061-01-5	cis-1,3-Dichloropropene	16	U
79-01-6	Trichloroethene	16	U
124-48-1	Dibromochloromethane	16	U
79-00-5	1,1,2-Trichloroethane	16	U
71-43-2	Benzene	16	U
10061-02-6	trans-1,3-Dichloropropene	16	U
75-25-2	Bromoform	16	U
108-10-1	4-Methyl-2-pentanone	16	U
591-78-6	2-Hexanone	16	U
127-18-4	Tetrachloroethene	16	U
79-34-5	1,1,2,2-Tetrachloroethane	16	U
108-88-3	Toluene	16	U
108-90-7	Chlorobenzene	16	U
100-41-4	Ethylbenzene	16	U
100-42-5	Styrene	16	U
1330-20-7	Xylene (total)	16	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L640-009

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: AK6I18

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec.

Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 ~~9~~	~~JB~~ U 8
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	5	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-002-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L640-009

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: AK6I18

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec.

Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

TRIP BLANK

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L640-010

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: AK6I19

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec.

Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	~~B~~ U 8
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

0000067

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TRIP BLANK

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L640-010

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: AK6I19

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec.

Date Analyzed: 06/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000372

CLIENT SAMPLE NO.

23-003-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-013

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062014

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 16

Date Analyzed: 06/20/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

US 7

FORM 1 VOA 3/90

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-003-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-013

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062014

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 16

Date Analyzed: 06/20/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 3/90

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-003-B001RE

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-013

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062211

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 16

Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	13	B
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

0 0 0 0 9 8 7 CLIENT SAMPLE NO.

23-006-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L640-016

Sample wt/vol: 5.00 (g/mL) G Lab File ID: R062015

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: not dec. 12 Date Analyzed: 06/20/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.00

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	8	J
67-64-1	Acetone	11 ~~2~~	~~JB~~ U 8
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U 7
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

FORM 1 VOA 3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-006-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-016

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062015

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 12

Date Analyzed: 06/20/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

000096

CLIENT SAMPLE NO.

23-006-B001RE

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-016

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: R062212

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: not dec. 12

Date Analyzed: 06/22/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	5	J
67-64-1	Acetone	12	B
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 9206L640 LAB: RFW, Lionville

SITE: Coltsneck

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.

		YES	NO	N/A
1.2	Was SMO CCS checklist included with package?	[✓]		

2.0 Cover Letter SDG Narrative

		YES	NO	N/A
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:

	YES	NO
VOA Data?	✓	
BNA Data?		✓
Pesticide/PCB data?		✓

Action: Complete corresponding parts of checklist.

	YES	NO	N/A

PART A: VOA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

	YES	NO	N/A
1.1 Are the Traffic Report Forms present for all samples?	[✓]		

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

	YES	NO	N/A
1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		[✓]	

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all Non-Detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

YES NO N/A

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? ___ [✓] ___

If unpreserved, aqueous samples maintained at 4°C which are to be analyzed for aromatic hydrocarbons must be analyzed within 7 days of collection. If preserved with HCl (pH<2) and stored at 4°C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved.

The holding time for soils is 10 days.

Table of Holding Time Violations

Sample ID	Sample Matrix	Preserved?	Date Sampled	(See Traffic Report) Date Lab Received	Date Analyzed

08-05-92

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable (R). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

	YES	NO	N/A
3.0 System Monitoring Compound (SMC) Recovery (Form II)			
3.1 Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:			
a. Low Water	[✓]	___	___
b. Low Soil	[✓]	___	___
c. Med Soil	[ ]	___	✓
3.2 Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:			
a. Low Water	[✓]	___	___
b. Low Soil	[✓]	___	___
c. Med Soil	[ ]	___	✓
ACTION: Call lab for explanation/ resubmittals. If missing deliverables are unavailable, document effect in data assessments.			
3.3 Were outliers marked correctly with an asterisk?	[✓]	___	___
ACTION: Circle all outliers in red.			
3.4 Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?	___	[✓]	___
If yes, were samples re-analyzed?	[ ]	___	✓
Were method blanks re-analyzed?	[ ]	___	✓

YES NO N/A

ACTION: If recoveries are > 10% but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated (J).
2. Flag all non-detects as estimated detection limits ("UJ") where recovery is less than the lower acceptance limit.
3. If SMC recoveries are above allowable levels, do not qualify non-detects.

If any system monitoring compound recovery is <10% :

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as unusable ("R").

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

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 in the data assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [ ] ✓ ___

	YES	NO	N/A
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water	[ ]	___	✓
b. Low Soil	[ ]	___	✓
c. Med Soil	[ ]	___	✓

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

4.3 How many VOA spike recoveries are outside QC limits?

Water	Soils
_____ out of 10	_____ out of 10

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

Water	Soils
_____ out of 5	_____ out of 5

ACTION: No action is taken based on MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?	[✓]	___	___
5.2 Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil, medium soil), whichever is more frequent?	[✓]	___	___

	YES	NO	N/A
5.3 Has a VOA method/instrument blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used?	✓		

ACTION: If any method blank data are missing, call lab for explanation/ resubmittal. If method blank data are not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.

5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.

	YES	NO	N/A
Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?	✓		

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

6.0 Contamination

NOTE: "Water blanks", "drill 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 (TCL and/or TIC) for VOAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture when necessary.	✓		
6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?		✓	

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

YES NO N/A

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral 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. If any blanks are grossly contaminated, all associated data should be qualified as unusable (R).

	Sample conc > CRQL but < 10x blank value	Sample conc < CRQL & <10x blank value	Sample conc > CRQL & >10x blank value
Methylene Chloride Acetone Toluene 2-Butanone	Flag sample result with a "U;	Report CRQL & qualify "U"	No qualification is needed

	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5x blank value
Other Contam-inants	Flag sample result with a "U"	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

	YES	NO	N/A
ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).			
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 GC/MS Instrument Performance Check (Form V)			
7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?	[✓]		
7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift?	[✓]		
7.3 Has an instrument performance compound been analyzed for every twelve hours of sample analysis per instrument?	[✓]		

YES NO N/A

ACTION: List date, time, instrument ID, and sample analysis for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

DJA 08-05-92

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

7.4 Have the ion abundances been normalized to m/z 95? [ ] [✓] ___

ACTION: If mass assignment is in error, qualify all associated data as unusable (R).

7.5 Have the ion abundance criteria been met for each instrument used? [✓] ___ ___

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.) ___ [✓] ___

	YES	NO	N/A
7.7 Have the appropriate number of significant figures (two) been reported?	[✓]	___	___
ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.			
7.8 Are the spectra of the mass calibration compound acceptable?	[✓]	___	___
ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.			

8.0 Target Compound List (TCL) Analytes

	YES	NO	N/A
8.1 Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates	[✓]	___	___
c. Blanks	[✓]	___	___
8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[✓]	___	___
c. Blanks	[✓]	___	___

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

		YES	NO	N/A
8.3	Are the response factors shown in the Quant Report?	[ ]		✓
8.4	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[✓]		
	Resolution?	[✓]		
	Peak shape?	[✓]		
	Full-scale graph (attenuation)?	[✓]		
	Other: _____	[ ]		

ACTION: Use professional judgement to determine the acceptability of the data.

8.5	Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?	[✓]		

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".

8.6	Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]		
8.7	Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		

	YES	NO	N/A
8.8 Do sample and standard relative ion intensities agree within 20%?	[✓]	___	___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

	YES	NO	N/A
9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]	___	___
9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate	[✓]	___	___
b. Blanks	[✓]	___	___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier if missing.

	YES	NO	N/A
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene- a VOA TCL analyte - and should not be reported as a TIC)?		[✓]	
9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	[✓]		

ACTION: Flag with "R" any TCL compound listed as a TIC.

ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate.

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (R). (i.e. Common Lab Contaminants: CO_2 (M/E 44), Siloxanes (M/E 73) Hexane, Aldol Condensation Products, Solvent Preservatives, and related by products - see Functional Guidelines for more guidance).

	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. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[✓]	___
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" and its associated value on the original Form I and substituting the data from the analysis of the 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 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?	[✓]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

	YES	NO	N/A
12.0 GC/MS Initial Calibration (Form VI)			
12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction at concentrations of 10, 20, 50, 100, 200 ug/l? Are there separate calibrations for low water/med soils and low soil samples?	[✓]	___	___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Were all low level soil standards, blanks and samples analyzed by heated purge?	[✓]	___	___

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" and non-detects "R".

12.3 Are response factors stable for VOA's over the concentration range of the calibration (%Relative Standard Deviation (%RSD) <30.0%)?	[ ]	✓	___

ACTION: Circle all outliers in red.

NOTE: Although 11 VOA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If %RSD > 30.0%, qualify associated positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detects for that analyte R (unusable).

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

12.4 Are the RRFs above 0.05?	[ ]	✓	___

Action: Circle all outliers in red.
Action: If any RRF are < 0.05, qualify associated non-detects (R) and flag associated positive data as estimated (J).

	YES	NO	N/A
12.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.)	___	[✓]	___
13.0 GC/MS Continuing Calibration (Form VII)			
13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the volatile fraction?	[✓]	___	___
13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument?	[✓]	___	___

ACTION: List below all sample analyses that were not within twelve hours of the previous continuing calibration analysis.

_____

_____

_____

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

	YES	NO	N/A
13.3 Do any volatile compounds have a % Difference (% D) between the initial and continuing RRF which exceeds the ± 25% criteria?	✓	[ ]	___

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When % D is above 90%, reject all non-detects for that analyte (R) unusable.

	YES	NO	N/A
13.4 Do any volatile compounds have a RRF <0.05?	[✓]	___	___

ACTION: Circle all outliers in red.

ACTION: If the RRF <0.05, qualify associated non-detects as unusable (R) and "J" associated positive values.

13.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more.)	___	[✓]	___

ACTION: Circle errors in red.

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

14.0 Internal Standard (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration?	[ ]	✓	___

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
23-007-B001	CB2	32286	54575	218298
23-003-B001	↓	52127	↓	↓
23-006-B001	↓	42741	↓	↓
23-007-D001RE	↓	26450	44562	178246
23-003-B001RE	↓	43093	↓	↓
23-006-B001RE	↓	30517	↓	↓

(Attach additional sheets if necessary.)

YES NO N/A

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results quantitated with this internal standard.

2. Non-detects associated with IS area counts > 100% should not be qualified.

3. If IS area is below the lower limit (< 50%), qualify all associated non-detects (U values) "J". If extremely low area counts are reported, (< 25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for VOA analysis? [ ] ✓ ___

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

ACTION: Any gross variation between 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.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92061640 SDG No. 23-002-001 LABORATORY RFW SITE Coltsneck

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), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Daniel J. Hill Date: 08/05/1992

Verified By:_____ Date:___/_____/199__

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 whose holding time has been exceeded 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 analytes in the samples shown were qualified because of holding time:

NONE

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse 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 and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (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

VBIKLVR046 soil
Acetone 2 10

VBIKLVK111 water
methylene chloride 2 10

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

NONE

C) Trip blank contamination

TRIP Blank
methylene chloride 105 10 NA

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl- phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning:

NONE

DATA ASSESSMENT

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/BNA Target Compound List (TCL) must be ≥ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor <0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All non-detects for those compounds will be rejected ("R"). The following analytes in the samples shown were qualified because of response factor:

Initial 05/06/92

no samples 2-butanone

Continuing AK6I02

VBIKLVK111 2-butanone
VBIKLVK111-BS
23-002-D201
TRIP Blank

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 of the continuing calibration check 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 %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

Initial 06/16/92
no samples Acetone

Continuing R062007
VBIKLVR046 Bromomethane
23-007-D001 Acetone
23-003-B001
23-006-B001

Continuing R062202
VBIKLVR048 Chloromethane
23-002-D001 Acetone
23-002-D101
23-007-D007RE 2 Hexanone
23-003-B001RE
23-006-B001RE

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

NONE

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ" only if IS area is < 50%. Non detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

23-007-D001	CBZ	32284	54575	218298
23-003-B001	CBZ	52127	54575	218298
23-006-B001	CBZ	42741	54575	218298
23-007-D001RE	CBZ	24450	44562	178246
23-003-B001RE	CBZ	48093	44562	178246
23-006-B001RE	CBZ	30577	44562	178246

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. 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 intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

NONE

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

NA

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 data. The following analytes, for the samples shown, were qualified because of MS/MSD:

NO MS/MSD

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

NONE

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

Fair

12. CONTRACTUAL 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:

23-007-B001RE
23-003-B001RE
23-006-B001RE

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

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

Data Validation Report

August 11, 1992

Prepared for

R. F. Weston
Weston Way
West Chester, PA. 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 12, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were five (5) soil samples and one (1) water sample which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L640.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The SVOA CLP fraction has been validated utilizing method specific requirements, Region II SOP NO. HW-6, March, 1990 requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**SVOA**
23-002-D001	9206L640-001	SOIL	X
23-002-D101	9206L640-002	SOIL	X
23-007-D001	9206L640-007	SOIL	X
23-002-D201	9206L640-009	WATER	X
23-003-B001	9206L640-013	SOIL	X
23-006-B001	9206L640-016	SOIL	X

Individual fractions were reviewed as follows:

			Primary	Secondary
SVOA	-	Semivolatile Analysis	Dan Heil	Gene Watson

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

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, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, Region II, and NEESA Level C and D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case# 9206L640

Holding Times

All of the holding time were met for all samples per the SOW and National Functional Guidelines. No qualifications are required.

Tuning

All of the DFTPP tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %RSDs. The average RRFs for all of the criteria compounds met the initial calibration criteria.

Specific Findings:

1. The initial calibration on, 06/15/91, contained compounds with %RSDs greater than 30% RSD. No qualifications are required because no samples were analyzed following the calibration.

   3-nitroaniline
   carbazole

Initial Calibration (continued)

Specific Findings:

2. For the samples listed below the initial calibration on, 07/02/92, contained compounds with %RSDs greater than 50% RSD but less than 90% RSD. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

23-003-B001	3-nitroaniline
23-007-D001	carbazole

Continuing Calibrations

The continuing calibrations that were analyzed with this data package required qualifications for non compliant %Ds. All of the criteria and non criteria compounds met RRF requirements.

Specific Findings:

3. For the samples listed below, the continuing calibration A062202, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

SBLKLE0869	4-methylphenol *
SBLKLE0869-BS	4-chloroaniline
SBLKLE0869-BSD	4-nitrophenol
23-002-D201	4,6-dinitro-2-methylphenol

* - denotes a calibration criteria compound

4. For the samples listed below the continuing calibration A062202, contained compounds with %Ds greater than 50% D but less than 90% D. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

SBLKLE0869	3-nitroaniline
SBLKLE0869-BS	2,4-dinitrophenol
SBLKLE0869-BSD	carbazole
23-002-D201	

Continuing Calibrations (continued)

Specific Findings:

5. For the samples listed below the continuing calibration A062512, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

SBLKLE0886-BS	hexachlorocyclopentadiene 3-nitroaniline 2,4-dinitrophenol 4-nitrophenol 3,3'-dichlorobenzidine 2-fluorophenol * * - denotes a calibration criteria compound

6. For the samples listed below the continuing calibration A062512, contained compounds with %Ds greater than 50% D but less than 90% D. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

SBLKLE0886-BS	carbazole

7. For the samples listed below the continuing calibration A062602, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

SBLKLE0886	3-nitroaniline 2,4-dinitrophenol 4-nitrophenol 2-fluorophenol * * - denotes a calibration criteria compound

8. For the samples listed below the continuing calibration A062602, contained compounds with %Ds greater than 50% D but less than 90% D. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

SBLKLE0886	carbozole

Continuing Calibrations (continued)

Specific Findings:

9. For the samples listed below the continuing calibration A070602, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

23-006-B001	2-nitroaniline
23-002-D001	hexachlorocyclopentadiene
23-002-D101	3-nitroaniline

10. For the samples listed below the continuing calibration A070602, contained compounds with %Ds greater than 50% D but less than 90% D. Qualify all positive results for these compounds as estimated (J) and qualify all non detects as estimated (UJ).

23-006-B001	4-nitroaniline
23-002-D001	
23-002-D101	

11. For the samples listed below the continuing calibration A070602, contained compounds with %Ds greater than 50% D but less than 90% D. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

23-006-B001	carbazole
23-002-D001	
23-002-D101	

12. For the samples listed below the continuing calibration A070602, contained compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

23-006-B001	3-nitroaniline
23-002-D001	
23-002-D101	

Internal Standards

All of the blank and sample internal standard EICP areas met the EICP internal standard area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited contamination for di-n-butylphthalate, bis(2-ethylhexyl)phthalate and TICs. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Method Blanks (continued)

Specific findings:

13. The following samples have been qualified for blank contamination. Qualifications are for all method blanks

    bis(2-ethylhexyl)phthalate - U
    23-002-D001
    23-002-D101
    23-007-D001
    23-002-D201
    23-003-B001
    23-006-B001

    di-n-butylphthalate - CRQL
    23-002-D201

14. The followings samples have been qualified for TIC contamination.

samples	rejected TICs
23-002-D001	1
23-002-D101	1
23-007-D001	1,2
23-002-D201	2,4
23-003-B001	1,2
23-006-B001	4,5

Surrogates

All of the surrogate recoveries did not meet the QA/QC criteria. One surrogate from each fraction is allowed to fall outside the criteria window per the SOW and functional guidelines as long as the recovery is greater than 10%. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate

An MS/MSD was not analyzed for semi-volatiles. No qualifications are required.

Blank Spike/Blank Spike Duplicate

The BS/BSD spike recoveries were not within the advisory limits. No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

Overall performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates less than 5% of data required qualification

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
23-003-B001 23-007-D001	3-nitroaniline carbazole	+/-	J/UJ	2
SBLKLE0869 SBLKLE0869-BS SBLKLE0869-BSD 23-002-D201	4-methylphenol * 4-chloroaniline 4-nitrophenol 4,6-dinitro-2-methylphenol * - denotes a calibration criteria compound	+	J	3
SBLKLE0869 SBLKLE0869-BS SBLKLE0869-BSD 23-002-D201	3-nitroaniline 2,4-dinitrophenol carbazole	+/-	J/UJ	4
SBLKLE0886-BS	hexachlorocyclo-pentadiene 3-nitroaniline 2,4-dinitrophenol 4-nitrophenol 3,3'-dichlorobenzidine 2-fluorophenol * * - denotes a calibration criteria compound	+	J	5
SBLKLE0886-BS	carbazole	+/-	J/UJ	6
SBLKLE0886	3-nitroaniline 2,4-dinitrophenol 4-nitrophenol 2-fluorophenol * * - denotes a calibration criteria compound	+	J	7

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
SBLKLE0886	carbozole	+/-	J/UJ	8
23-006-B001 23-002-D001 23-002-D101	2-nitroaniline hexachlorocyclopentadiene 3-nitroaniline	+	J	9
23-006-B001 23-002-D001 23-002-D101	4-nitroaniline	+/-	J/UJ	10
23-006-B001 23-002-D001 23-002-D101	carbazole	+/-	J/R	11
23-006-B001 23-002-D001 23-002-D101	3-nitroaniline	+/-	J/R	12
23-002-D001 23-002-D101 23-007-D001 23-002-D201 23-003-B001 23-006-B001	bis(2-ethylhexyl) phthalate	+	U	13
23-002-D201	di-n-butyl-phthalate	+	CRQL	13

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
	TICs	+	R	14
23-002-D001	1			
23-002-D101	1			
23-007-D001	1,2			
23-002-D201	2,4			
23-003-B001	1,2			
23-006-B001	4,5			

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-001

Sample wt/vol: 32.5 (g/mL) G

Lab File ID: A070606

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 24 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/06/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	57	J
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(2-Chloropropane)	400	U
106-44-5	4-Methylphenol	130	J
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	~~1000~~	U R 12
83-32-9	Acenaphthene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-001

Sample wt/vol: 32.5 (g/mL) G

Lab File ID: A070606

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 24 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/06/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	~~U~~ UJ 10
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	34	J
120-12-7	Anthracene	400	U
86-74-8	Carbazole	~~400~~	~~U~~ R 11
84-74-2	Di-n-butylphthalate	54	J
206-44-0	Fluoranthene	64	J
129-00-0	Pyrene	57	J
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	39	J
218-01-9	Chrysene	40	J
117-81-7	bis(2-Ethylhexyl)phthalate	720	~~B~~ U 13
117-84-0	Di-n-octyl phthalate	400	U
205-99-2	Benzo(b)fluoranthene	31	J
207-08-9	Benzo(k)fluoranthene	31	J
50-32-8	Benzo(a)pyrene	28	J
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-001

Sample wt/vol: 32.5 (g/mL) G

Lab File ID: A070606

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 24 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/06/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

Number TICs found: 23

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.15	~~5000~~	JAB 14
2.	ORGANIC ACID	20.04	600	J
3.	ORGANIC ACID	21.44	2000	J
4.	ORGANIC ACID	21.53	3000	J
5.	UNKNOWN	22.17	500	J
6.	UNKNOWN	22.60	1000	J
7.	UNKNOWN	22.68	500	J
8.	UNKNOWN	24.88	400	J
9.	ALKANE	26.65	500	J
10.	ALKANE	29.26	1000	J
11.	UNKNOWN	30.56	500	J
12.	ALKANE	32.52	400	J
13.	ALKANE	33.05	800	J
14.	ALKANE	33.48	700	J
15.	UNKNOWN	34.80	900	J
16.	UNKNOWN	35.91	2000	J
17.	UNKNOWN	37.69	800	J
18.	UNKNOWN	38.18	700	J
19.	UNKNOWN	38.59	500	J
20.	UNKNOWN	38.75	700	J
21.	ALCOHOL	38.89	2000	J
22.	UNKNOWN	40.31	2000	J
23.	UNKNOWN	42.56	800	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L640-002

Sample wt/vol: 31.1 (g/mL) G Lab File ID: A070607

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: 26 decanted: (Y/N)__ Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/06/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	51	J
111-44-4	bis(2-Chloroethyl)ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	2,2'-oxybis(2-Chloropropane)	440	U
106-44-5	4-Methylphenol	41	J
621-64-7	N-Nitroso-di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U
99-09-2	3-Nitroaniline	~~1100~~	~~U~~ R
83-32-9	Acenaphthene	440	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L640-002

Sample wt/vol: 31.1 (g/mL) G Lab File ID: A070607

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: 26 decanted: (Y/N)__ Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/06/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	1100	~~B~~ U5 10
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	30	J
120-12-7	Anthracene	440	U
86-74-8	Carbazole	~~440~~ ~~U~~ 2 11	
84-74-2	Di-n-butylphthalate	58	J
206-44-0	Fluoranthene	58	J
129-00-0	Pyrene	51	J
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	25	J
218-01-9	Chrysene	35	J
117-81-7	bis(2-Ethylhexyl)phthalate	860	~~B~~ U 13
117-84-0	Di-n-octyl phthalate	440	U
205-99-2	Benzo(b)fluoranthene	26	J
207-08-9	Benzo(k)fluoranthene	29	J
50-32-8	Benzo(a)pyrene	25	J
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenz(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-002-D101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-002

Sample wt/vol: 31.1 (g/mL) G

Lab File ID: A070607

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 26 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/06/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.6

Number TICs found: 23

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.15	~~3000~~	~~JAB~~ R 14
2.	ORGANIC ACID	20.05	600	J
3.	ORGANIC ACID	21.44	1000	J
4.	ORGANIC ACID	21.54	3000	J
5.	UNKNOWN	22.10	300	J
6.	UNKNOWN	22.61	900	J
7.	ORGANIC ACID	22.70	500	J
8.	ADIPATE	24.20	300	J
9.	UNKNOWN	24.89	500	J
10.	ALKANE	26.66	300	J
11.	UNKNOWN	28.18	400	J
12.	ALKANE	29.3	700	J
13.	ALKANE	30.57	300	J
14.	UNKNOWN	32.54	300	J
15.	ALKANE	33.05	400	J
16.	UNKNOWN	33.50	400	J
17.	UNKNOWN	34.82	700	J
18.	UNKNOWN	35.93	2000	J
19.	ALKENE	37.70	600	J
20.	UNKNOWN	38.2	900	J
21.	UNKNOWN	38.76	300	J
22.	UNKNOWN	38.87	2000	J
23.	UNKNOWN	40.33	2000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-007-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT — Lab Sample ID: 9206L640-007

Sample wt/vol: 31.1 (g/mL) G — Lab File ID: A070218

Level: (low/med) LOW — Date Received: 06/12/92

% Moisture: 38 decanted: (Y/N)__ — Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL) — Date Analyzed: 07/03/92

Injection Volume: 2.0(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	520	U
111-44-4	bis(2-Chloroethyl)ether	520	U
95-57-8	2-Chlorophenol	520	U
541-73-1	1,3-Dichlorobenzene	520	U
106-46-7	1,4-Dichlorobenzene	520	U
95-50-1	1,2-Dichlorobenzene	520	U
95-48-7	2-Methylphenol	520	U
108-60-1	2,2'-oxybis(2-Chloropropane)	520	U
106-44-5	4-Methylphenol	520	U
621-64-7	N-Nitroso-di-n-propylamine	520	U
67-72-1	Hexachloroethane	520	U
98-95-3	Nitrobenzene	520	U
78-59-1	Isophorone	520	U
88-75-5	2-Nitrophenol	520	U
105-67-9	2,4-Dimethylphenol	520	U
111-91-1	bis(2-Chloroethoxy)methane	520	U
120-83-2	2,4-Dichlorophenol	520	U
120-82-1	1,2,4-Trichlorobenzene	520	U
91-20-3	Naphthalene	520	U
106-47-8	4-Chloroaniline	520	U
87-68-3	Hexachlorobutadiene	520	U
59-50-7	4-Chloro-3-methylphenol	520	U
91-57-6	2-Methylnaphthalene	520	U
77-47-4	Hexachlorocyclopentadiene	520	U
88-06-2	2,4,6-Trichlorophenol	520	U
95-95-4	2,4,5-Trichlorophenol	1300	U
91-58-7	2-Chloronaphthalene	520	U
88-74-4	2-Nitroaniline	1300	U
131-11-3	Dimethylphthalate	520	U
208-96-8	Acenaphthylene	520	U
606-20-2	2,6-Dinitrotoluene	520	U
99-09-2	3-Nitroaniline	1300	~~U~~ 52
83-32-9	Acenaphthene	520	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-007-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L640-007

Sample wt/vol: 31.1 (g/mL) G Lab File ID: A070218

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: 38 decanted: (Y/N)__ Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/03/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1300	U
100-02-7	4-Nitrophenol	1300	U
132-64-9	Dibenzofuran	520	U
121-14-2	2,4-Dinitrotoluene	520	U
84-66-2	Diethylphthalate	520	U
7005-72-3	4-Chlorophenyl-phenylether	520	U
86-73-7	Fluorene	520	U
100-01-6	4-Nitroaniline	1300	U
534-52-1	4,6-Dinitro-2-methylphenol	1300	U
86-30-6	N-Nitrosodiphenylamine (1)	520	U
101-55-3	4-Bromophenyl-phenylether	520	U
118-74-1	Hexachlorobenzene	520	U
87-86-5	Pentachlorophenol	1300	U
85-01-8	Phenanthrene	46	J
120-12-7	Anthracene	520	U
86-74-8	Carbazole	520	~~U~~ UJ 2
84-74-2	Di-n-butylphthalate	53	J
206-44-0	Fluoranthene	110	J
129-00-0	Pyrene	90	J
85-68-7	Butylbenzylphthalate	520	U
91-94-1	3,3'-Dichlorobenzidine	520	U
56-55-3	Benzo(a)anthracene	39	J
218-01-9	Chrysene	70	J
117-81-7	bis(2-Ethylhexyl)phthalate	810	~~B~~ U 13
117-84-0	Di-n-octyl phthalate	520	U
205-99-2	Benzo(b)fluoranthene	54	J
207-08-9	Benzo(k)fluoranthene	55	J
50-32-8	Benzo(a)pyrene	41	J
193-39-5	Indeno(1,2,3-cd)pyrene	520	U
53-70-3	Dibenz(a,h)anthracene	520	U
191-24-2	Benzo(g,h,i)perylene	520	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-007-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-007

Sample wt/vol: 31.1 (g/mL) G

Lab File ID: A070218

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 38 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

Number TICs found: 24

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.69	~~200~~	~~JB~~ R 14
2.	ALDOL CONDENSATE	7.12	~~3000~~	~~JAB~~ R 14
3.	ORGANIC ACID	21.50	1000	J
4.	UNKNOWN	22.58	200	J
5.	ORGANIC ACID	22.67	300	J
6.	ADIPATE	24.18	300	J
7.	UNKNOWN	24.88	600	J
8.	ALKANE	26.66	200	J
9.	UNKNOWN	26.80	200	J
10.	ALKANE	27.84	200	J
11.	UNKNOWN	28.16	500	J
12.	ALKANE	29.27	700	J
13.	UNKNOWN	29.51	200	J
14.	UNKNOWN	31.84	200	J
15.	ALKANE	33.06	1000	J
16.	UNKNOWN	33.46	300	J
17.	UNKNOWN	35.26	500	J
18.	UNKNOWN	35.38	200	J
19.	UNKNOWN	36.86	900	J
20.	ALKANE	37.19	200	J
21.	UNKNOWN	37.69	200	J
22.	UNKNOWN	38.88	3000	J
23.	UNKNOWN	39.28	300	J
24.	UNKNOWN	40.24	700	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L640-009

Sample wt/vol: 960 (g/mL) ML Lab File ID: A062211

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/17/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/23/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(2-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	~~U~~ UJ 4
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L640-009

Sample wt/vol: 960 (g/mL) ML Lab File ID: A062211

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/17/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/23/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	26	~~U~~ UJ 4
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	~~U~~ UJ 4
84-74-2	Di-n-butylphthalate	10 ~~2~~	~~JB~~ U 13
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	18	~~B~~ U 13
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-002-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L640-009

Sample wt/vol: 960 (g/mL) ML

Lab File ID: A062211

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 06/17/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/23/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	22.16	20	J
2.	ADIPATE	24.08	~~10~~	~~J~~ R 14
3.	AROMATIC	25.22	2	J
4.	UNKNOWN	27.96	~~20~~	~~J~~ R 14

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-003-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-013

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: A070217

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 16 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(2-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	390	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-003-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9206L640-013

Sample wt/vol: 30.5 (g/mL) G Lab File ID: A070217

Level: (low/med) LOW Date Received: 06/12/92

% Moisture: 16 decanted: (Y/N)__ Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/03/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	~~U~~ J 2
84-74-2	Di-n-butylphthalate	48	J
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	600	~~B~~ U B
117-84-0	Di-n-octyl phthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-003-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-013

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: A070217

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 16 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.9

Number TICs found: 15

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	6.68	~~200~~	~~JB~~ 14
2.	ALDOL CONDENSATE	7.11	~~3000~~	~~JAB~~ 14
3.	UNKNOWN	7.54	90	J
4.	ALDOL CONDENSATE	8.48	80	JA
5.	ALDOL CONDENSATE	10.11	80	JA
6.	ORGANIC ACID	21.50	900	J
7.	UNKNOWN	22.66	200	J
8.	ADIPATE	24.19	300	J
9.	UNKNOWN	24.87	300	J
10.	UNKNOWN	27.89	1000	J
11.	UNKNOWN	28.15	300	J
12.	UNKNOWN	33.45	100	J
13.	UNKNOWN	35.88	2000	J
14.	UNKNOWN	38.22	3000	J
15.	UNKNOWN	38.82	1000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-006-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL — Lab Sample ID: 9206L640-016

Sample wt/vol: 30.5 (g/mL) G — Lab File ID: A070605

Level: (low/med) LOW — Date Received: 06/12/92

% Moisture: 12 decanted: (Y/N)__ — Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL) — Date Analyzed: 07/06/92

Injection Volume: 2.0(uL) — Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(2-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	~~930~~	~~U~~ R 12
83-32-9	Acenaphthene	370	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-006-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-016

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: A070605

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 12 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/06/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	930	~~U~~ UJ 10
534-52-1	4,6-Dinitro-2-methylphenol	930	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	~~370~~	~~U~~ R 11
84-74-2	Di-n-butylphthalate	40	J
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	830	~~B~~ U 13
117-84-0	Di-n-octyl phthalate	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenz(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-006-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-016

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: A070605

Level: (low/med) LOW

Date Received: 06/12/92

% Moisture: 12 decanted: (Y/N)__

Date Extracted: 06/18/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/06/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 7.2

Number TICs found: 24

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.35	80	JA
2.	UNKNOWN	5.45	90	J
3.	UNKNOWN	6.33	100	J
4.	UNKNOWN	6.70	~~300~~	~~JB~~ B 14
5.	ALDOL CONDENSATE	7.14	~~4000~~	~~JAB~~ B 14
6.	UNKNOWN	7.55	100	J
7.	ALDOL CONDENSATE	8.49	100	JA
8.	UNKNOWN	8.65	80	J
9.	AROMATIC	8.77	90	J
10.	ORGANIC ACID	9.25	80	J
11.	ALDOL CONDENSATE	10.12	90	JA
12.	ORGANIC ACID	21.51	1000	J
13.	ORGANIC ACID	22.67	200	J
14.	ALKANE	24.07	100	J
15.	ADIPATE	24.2	500	J
16.	ALKANE	24.81	100	J
17.	UNKNOWN	24.89	600	J
18.	ALKANE	25.66	100	J
19.	ALKANE	26.65	100	J
20.	UNKNOWN	28.15	400	J
21.	ALKANE	29.25	100	J
22.	ALKANE	33.03	90	J
23.	UNKNOWN	38.83	80	J
24.	UNKNOWN	39.26	100	J

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92066640 LAB: RFW - Lionville

SITE: Cottageneck

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.

		YES	NO	N/A
1.2	Was SMO CCS checklist included with package?	[✓]		

2.0 Cover Letter SDG Narrative

		YES	NO	N/A
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:

	YES	NO
VOA Data?		✓
BNA Data?	✓	
Pesticide/PCB data?		✓

Action: Complete corresponding parts of checklist.

	YES	NO	N/A

PART B: BNA 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: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be flagged as estimated ("J"). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? ___ [✓] ___

Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/ sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

YES NO N/A

Table of Holding Time Violations

(See Traffic Report)

Sample	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed

DJK 08-04-92

ACTION: If technical holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("UJ"), and document in the narrative that holding times were exceeded.

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable ("R"). If holding times are exceeded by more than 28 days, all non detect data are unusable (R).

3.0 Surrogate Recovery (Form II)

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

		YES	NO	N/A
a.	Low Water	[✓]		
b.	Low Soil	[✓]		
c.	Med Soil	[ ]		✓

	YES	NO	N/A
3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
a. Low Water	[✓]		
b. Low Soil	[✓]		
c. Low Soil	[✓]		

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers in red.

3.4 Were two or more base-neutral <u>OR</u> acid surrogate recoveries out of specification for any sample or method blank?	[ ]	✓	
If yes, were samples reanalyzed?	[ ]		✓
Were method blanks reanalyzed?	[ ]		✓

ACTION: If all BNA surrogate recoveries are > 10% but two within the base-neutral or acid fraction do not meet SOW specifications, <u>for the affected fraction only (i.e. base-neutral or acid compounds)</u>:

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.
3. If recoveries are greater than the upper acceptance limit, do not qualify non-detects.

	YES	NO	N/A

If any base-neutral <u>or</u> acid surrogate has a recovery of <10%:

1. Positive results for the fraction with <10% surrogate recovery are qualified with "J".

2. Non-detects for that fraction should be qualified as unusable (R) .

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Check the internal standard areas.

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 document effect in data assessments.

4.0 <u>Matrix Spikes (Form III)</u>

4.1 Is the Matrix Spike/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. Low Soil [✓] ___ _

c. Med Soil [✓] ___ _

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

	YES	NO	N/A

4.3 How many BNA spike recoveries are outside QC limits?

Water	Soils
____ out of 22	____ out of 22

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

Water	Soils
____ out of 11	____ out of 11

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [✓] ___ ___

5.2 Frequency of Analysis:

Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch? [✓] ___ ___

5.3 Has a BNA method blank been analyzed for each GC/MS system used? [✓] ___ ___
(See SOW p. D - 59/SV, Section 8.7)

ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If not available, use professional judgement to determine if the associated sample data should be qualified.

	YES	NO	N/A
5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.			
Is the chromatographic performance (baseline stability) for each instrument acceptable for BNAs?	[✓]	___	___

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

6.0 Contamination

Note: "Water blanks", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify the 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 (TCL and/or TIC) for BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for % moisture where necessary.	✓	[ ]	___
6.2 Do any field/rinse/ blanks have positive BNA results (TCL and/or TIC)?	___	[ ]	✓

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

Note: All field blank results associated to a particular group of samples (may exceed one per case) must be used to qualify data. Blanks may not be qualified because of contamination in another blank . Field Blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

YES NO N/A

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable (R).

Sample conc > CRQL but < 10x blank	Sample conc <CRQL & is< 10x blank value	Sample conc > CRQL value & >10x blank
Common Phthalate Esters		
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed
Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & >5 blank value
Other Contaminants		
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

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.

	YES	NO	N/A

7.0 GC/MS Instrument Performance Check

		YES	NO	N/A
7.1	Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)?	[✓]		
7.2	Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift?	[✓]		
7.3	Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument?	[✓]		

ACTION: List date, time, instrument ID, and sample analyses for which no associated GC/MS tuning data are available.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

ACTION: If lab cannot provide missing data, reject ("R") all data generated outside an acceptable twelve hour calibration interval.

ACTION: If mass assignment is in error, flag all associated sample data as unusable (R).

		YES	NO	N/A
7.4	Have the ion abundances been normalized to m/z 198?	[ ]	[✓]	

	YES	NO	N/A
7.5 Have the ion abundance criteria been met for each instrument used?	[✓]	___	___

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.

7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)	___	[✓]	___
7.7 Have the appropriate number of significant figures (two) been reported?	[✓]	___	___

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

7.8 Are the spectra of the mass calibration compound acceptable?	[✓]	___	___

ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.

8.0 <u>Target Compound List (TCL) Analytes</u>

8.1 Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate	[✓]	___	___
b. Matrix spikes and matrix spike duplicates	[✓]	___	___
c. Blanks	[✓]	___	___

		YES	NO	N/A
8.2	Has GPC cleanup been performed on all soil/ sediment sample extracts?	[✓]		
	ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in "Contract Problems/Non-Compliance".			
8.3	Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
	a. Samples and/or fractions as appropriate	[✓]		
	b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[✓]		
	c. Blanks	[✓]		
	ACTION: If any data are missing, take action specified in 3.2 above.			
8.4	Are the response factors shown in the Quant Report?	[ ]	✓	
8.5	Is chromatographic performance acceptable with respect to:			
	Baseline stability?	[✓]		
	Resolution?	[✓]		
	Peak shape?	[✓]		
	Full-scale graph (attenuation)?	[✓]		
	Other:_____	[ ]		
	ACTION: Use professional judgement to determine the acceptability of the data.			

	YES	NO	N/A
8.6 Are the lab-generated standard mass spectra of identified BNA compounds present for each sample?	[✓]	___	___

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If lab does not generate their own standard spectra, make note in "Contract Problems/ Non-compliance". If spectra are missing, reject all positive data.

8.7 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]	___	___
8.8 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]	___	___
8.9 Do sample and standard relative ion intensities agree within 20%?	[✓]	___	___

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected (R), flagged "N" (Presumptive evidence of the presence of the compound) or changed to not detected (U) at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 <u>Tentatively Identified Compounds (TIC)</u>

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]	___	___

	YES	NO	N/A
9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate	✓		
b. Blanks	✓		
ACTION: If any TIC data are missing, take action specified in 3.2 above.			
ACTION: Add "JN" qualifier if missing.			
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds (example: 1,2-dimethylbenzene is xylene a VOA TCL - and should not be reported as a TIC)?		✓	
ACTION: Flag with "R" any TCL compound listed as a TIC.			
9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	✓		
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	✓		
ACTION: Use professional judgement to determine acceptability of TIC identifications. If it is determined that an incorrect identification was made, change identification to "unknown" or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable (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. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result. Were any errors found?	___	[✓]	___
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 document effect in data assessments.

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" and it's associated value on the original Form I and substituting the data from the analysis of the 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 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant, Reports) present for initial and continuing calibration?	[✓]	___	___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

	YES	NO	N/A

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? [✓] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are response factors stable for BNAs over the concentration range of the calibration? (% Relative standard deviation (%RSD) < 30.0%) [ ] ✓ ___

ACTION: Circle all outliers in red.

NOTE: Although 20 BNA compounds have a minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

ACTION: If the % RSD is > 30.0%, qualify positive results for that analyte "J" and non-detects using professional judgement. When RSD > 90%, flag all non-detect results for that analyte R (unusable).

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are all BNA compound RRFs > 0.05? [✓] ✓ 020492 ___

ACTION: Circle all outliers in red.

ACTION: If any RRF < 0.05
1. "R" all non-detects.
2. "J" all positive results.

12.4 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % RSD? (Check at least two values but if errors are found, check more.) ___ [✓] ___

ACTION: Circle Errors in red.

YES NO N/A

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and note errors in data assessments.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? [✓] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [✓] ___ ___

ACTION: List below all sample analyses that were not within twelve hours of a continuing calibration analysis for each instrument used.

_____

_____

_____

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, call lab for explanation/ resubmittal. If continuing calibration data are not available, flag all associated sample data as unusable ("R").

13.3 Do any semivolatile compounds have a % Difference (% D) between the initial and continuing RRF which exceeds the + 25.0% criteria? ✓ ___ [✓] ___ 08-01-92

ACTION: Circle all outliers in red.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated (J). When %D is above 90%, reject all non-detects for that analyte (R) unusable.

	YES	NO	N/A
13.4 Do any semivolatile compounds have a RRF <0.05?	✓	[ ]	

ACTION: Circle all outliers in red.

ACTION: If RRF <0.05, qualify as unusable (R) associated non-detects and "J" associated positive values.

13.5 Are there any transcription/calculation errors in the reporting of average response factors (RRF) or % difference (%D) between initial and continuing RRFs? (Check at least two values but if errors are found, check more).		✓	

ACTION: Circle errors in red.

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to + 100%) for each continuing calibration?	✓		

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	~~Upper Limit~~

08-04-92

(Attach additional sheets if necessary.)

ACTION: 1. If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard.

YES NO N/A

2. Non-detects associated with IS areas > 100% should not be qualified.

3. If the IS area is below the lower limit (<50%), qualify all associated non-detects (U-values) "J". If extremely low area counts are reported (<25%) or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable (R).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for BNA 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.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92066640 SDG No. 23-002-D001 LABORATORY RFW SITE Coltsneck

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), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable),or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Daniel J. Hein Date: 08/04/1992

Verified By:_____ Date:___/_____/199__

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 whose holding time has been exceeded 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 analytes in the samples shown were qualified because of holding time:

NONE

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse 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 and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (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

SB1KLE0888 SOIL
bis(2-ethylhexyl)phthalate 180 330
TICs 1 6.68
2 7.13

SB1KLE0869 water
Di-n-butylphthalate 2 10
bis(2-ethylhexyl) phthalate 17 10
TICs 1 -24.11
2 -28.01

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

not identified

C) Trip blank contamination

NONE

DATA ASSESSMENT

3. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene (BFB) and for semi-volatiles is decafluorotriphenyl- phosphine (DFTPP).

If the mass calibration is in error, or missing, all associated data will be classified as unusable, "R". The following samples shown were qualified with "R" because of tuning:

NONE

DATA ASSESSMENT

4. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument is giving satisfactory daily performance.

A) RESPONSE FACTOR

The response factor measures the instrument's response to specific chemical compounds. The response factor for the VOA/BNA Target Compound List (TCL) must be $\geq$ 0.05 in both the initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). If the mean RRF of the initial calibration or the continuing calibration has a response factor <0.05 for any analyte, those analytes detected in environmental samples will be qualified as estimated, "J". All non-detects for those compounds will be rejected ("R"). The following analytes in the samples shown were qualified because of response factor:

Continuing A070602
23-006-B001 3-nitroaniline
23-002-D001
23-002-D101

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 of the continuing calibration check 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 %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

Initial 06/15/92
no samples 3-nitrophenol
carbazole

Continuing A062602
SBIKLE0886 3-nitroaniline
2,4-dinitrophenol
4-nitrophenol
3,3-dichlorobenzidine
2-Fluorophenol *
-carbazole

Continuing A062202
SBIKLE0869 4-methylphenol *
SBIKLE0869-BS 4-chloroaniline
SBIKLE0869-BSD 4-nitrophenol
23-002-D201 4,6-dinitrophenol
3-nitroaniline
carbazole
2,4-dinitrophenol

Initial 07/02/92
23-003-B001 3-nitroaniline
23-007-D001 carbazole

Continuing A0625512
SBIKLE0886-BS hexachlorocyclopentadiene
3-nitroaniline
2,4-dinitrophenol
4-nitrophenol
3,3'dichlorobenzidine
2-fluorophenol
-carbazole

Continuing A070602
23-006-B001 2-nitrophenol
23-002-D001 hexachlorocyclopentadiene
23-002-D101 3-nitroaniline
-4-nitroaniline >90
-carbazole >90

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

SBIKLE0869-MB1-BS	2-Fluorobiphenyl	41	NA
23-002-0001	phenol d5	116	NA

DATA ASSESSMENT

7. INTERNAL STANDARDS PERFORMANCE:

Internal Standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during every experimental run. The internal standard area count must not vary by more than a factor of 2 (-50% to +100%) from the associated continuing calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated continuing calibration standard. If the area count is outside the (-50% to +100%) range of the associated standard, all of the positive results for compounds quantitated using that IS are qualified as estimated, "J", and all non-detects as "UJ" only if IS area is < 50%. Non detects are qualified as "R" if there is a severe loss of sensitivity (< 25% of associated IS area counts).

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction. The following analytes in the samples shown were qualified because of internal standards performance:

NONE

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. 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 intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

NONE

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

NA

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 data. The following analytes, for the samples shown, were qualified because of MS/MSD:

NO MS/MSD

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

SBIK LE0869-MB1 BS/BSD

4-nitrophenol	106*/108*	10-80	NA
4-chloro-3-methylphenol	95/99*	23-97	NA

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

fair

12. CONTRACTUAL 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:

NONE

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

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

Data Validation Report

Pesticide/Aroclors

August 13, 1992

Prepared for

Roy F. Weston, Inc.
Weston Way
West Chester, PA 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy program June 12, 1992 at the **NWS Earle - ColtsNeck, NJ** site. There was one (1) water sample with no MS/MSD and five (5) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratory - Lionville in this analytical batch, **RFW Lot# 9206L640.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Pesticide/Aroclor fraction has been validated utilizing: the "National Functional Guidelines For Organic Data Review, Multi-Media, Multi-Concentration (OLM01.0) and Low Concentration Water (OLC01.0), Draft December 1990, Revised June 1991; Region II SOP No. HW-6, Revision 8, January 1992; NEESA Level D requirements; and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Roy F. Weston, Inc.

Sample Identifications			Analytical Fraction
FIELD ID	**LABORATORY ID**	**Matrix**	**PEST**
23-002-D001	9206L640-001	SOIL	X
23-002-D101	9206L640-002	SOIL	X
23-002-D101MS	9206L640-002MS	SOIL	X
23-002-D101MSD	9206L640-002MSD	SOIL	X
23-007-D001	9206L640-007	SOIL	X
23-002-D201	9206L640-009	WATER	X
23-003-B001	9206L640-013	SOIL	X
23-006-B001	9206L640-016	SOIL	X

MS - Matrix Spike MSD - Matrix Spike Duplicate

Individual fractions were reviewed as follows:

	Primary	Secondary
PEST - CLP Pesticide/Aroclors 3/90 SOW	Chris Scarpellino	Paul Humburg

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR 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.

One (1) water sample with no MS/MSD and five (5) soil samples with one (1) MS/MSD were included in this analytical data package, **RFW Lot # 9206L640**. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in the EPA CLP OLM01.6 Statement of Work, dated June 1991, the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91, and the Region II SOP HW-6, Revision 8, 1/92. 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 U.S. EPA CLP. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results.

In general, the chromatography for these samples was good. The data package presented contained relatively minor contractual and technical deficiencies.

Contractual Non-Compliance

The laboratory is apparently using 0.5 uL injection volumes rather than the SOW specified 1.0 or 2.0 uL volumes. This non-standard injection volume, apparently obtained by a split 1.0 uL injection, does not appear to adversely impact the reported results.

The laboratory did not include control limits or control charts in this data package for the reported Blank Spikes, as required by the NEESA QA Protocol. CLP control limits were reported for the blank spikes rather than performance-based statistical limits.

Holding Times

Extraction and analysis hold times were met for all samples.

GC Instrument Performance

The GC column resolution requirements were apparently met for both of the columns in both sequences utilized for analyses included in this package.

Surrogate retention times were all within QC limits and all compounds in all analytical standards fell within the laboratory reported Retention Time Windows (RTWs).

No Endrin or 4,4'-DDT Breakdowns exceeded the QC limit.

No qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations both columns in both sequences were acceptably linear. No qualifications were required based on the initial calibrations.

Continuing Calibrations

All continuing calibration standards associated with the reported samples were within the required QC limits. No qualifications were required.

Blanks

No confirmed positive results were reported by the laboratory or identified by the reviewer for either the water or the soil Method Blank.

Instrument Blanks showed no significant peaks within target compound retention time windows. Minor peaks were identified one column or the other. No qualifications were required.

Sulfur cleanup blanks were not required because sulfur cleanup was not performed on any of the samples.

Florisil and GPC QC Checks

All recoveries reported for the Florisil Check on Form 9A were within the required QC limits. No raw data for this analysis was identified in the data package. All recoveries reported for the GPC Calibration on Form 9B were within the required QC limits. No raw data for this analysis was identified in the data package.

Surrogate Recoveries

One sample showed three of the four reported surrogate recoveries (2 surrogates x 2 columns) which were outside the QC limits.

Specific Finding

1. All positive and non-detect results for sample 23-003-B001 are qualified as estimated, "J" or "UJ" due to slightly low surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate

All % Recoveries and RPDs for the soil MS/MSD and the water BS/BSD were within EPA CLP QC limits. No qualifications were required.

Analyte Identification/Quantitation

Only one positive result eported for these samples had a %D greater than 25% for the quantitative differences between the columns.

Specific Finding

2. The reported result for alpha-Chlordane in sample 23-007-D001 is qualified "NJ", due to a significant discrepancy between the column quantitations (50-90%).

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
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 concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDING
23-003-B001	All	+/U	J/UJ	1
23-007-D001	alpha-Chlordane	+	NJ	2

* DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
QL denotes the qualifier(s) used by Validator
+ in the QL column denotes a validator revised result

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-001

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.22

% Moisture: 26. decanted: (Y/N)

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/26/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.3	U
319-85-7	Beta-BHC	2.3	U
319-86-8	Delta-BHC	2.3	U
58-89-9	gamma-BHC (Lindane)	2.3	U
76-44-8	Heptachlor	2.3	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
959-98-8	Endosulfan I	2.3	U
60-57-1	Dieldrin	4.5	U
72-55-9	4,4'-DDE	4.5	U
72-20-8	Endrin	4.5	U
33213-65-9	Endosulfan II	4.5	U
72-54-8	4,4'-DDD	4.5	U
1031-07-8	Endosulfan sulfate	4.5	U
50-29-3	4,4'-DDT	4.5	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.5	U
7421934	Endrin aldehyde	4.5	U
5103-71-9	alpha-Chlordane	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
8001-35-2	Toxaphene	230	U
12674-11-2	Aroclor-1016	45	U
11104-28-2	Aroclor-1221	90	U
11141-16-5	Aroclor-1232	45	U
53469-21-9	Aroclor-1242	45	U
12672-29-6	Aroclor-1248	45	U
11097-69-1	Aroclor-1254	45	U
11096-82-5	Aroclor-1260	45	U

DS 7-14-92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D101

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-002

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.23

% Moisture: 21. decanted: (Y/N)

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/26/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.1	U
319-85-7	Beta-BHC	2.1	U
319-86-8	Delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'-DDE	4.2	U
72-20-8	Endrin	4.2	U
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'-DDD	0.84	J
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	4.2	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.2	U
7421934	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	84	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	42	U
11096-82-5	Aroclor-1260	42	U

DS 7-15-92

FORM 1 PEST 03/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D101MS

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-002 MS

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.35

% Moisture: 21. decanted: (Y/N)_

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/27/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.1	U
319-85-7	Beta-BHC	2.1	U
319-86-8	Delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	72.0	%
76-44-8	Heptachlor	66.0	%
309-00-2	Aldrin	70.0	%
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	74.0	%
72-55-9	4,4'-DDE	0.42	J
72-20-8	Endrin	83.0	%
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'-DDD	1.3	J
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	81.0	%
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.2	U
7421934	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	84	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	42	U
11096-82-5	Aroclor-1260	42	U

DS 7-15-92

%: SPIKE COMPOUND FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D101MSD

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-002 MSD

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.36

% Moisture: 21. decanted: (Y/N)_

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/27/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.1	U
319-85-7	Beta-BHC	2.1	U
319-86-8	Delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	52.0	%
76-44-8	Heptachlor	52.0	%
309-00-2	Aldrin	54.0	%
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	56.0	%
72-55-9	4,4'-DDE	0.42	J
72-20-8	Endrin	61.0	%
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'-DDD	0.84	J
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	62.0	%
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.2	U
7421934	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	84	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	42	U
11096-82-5	Aroclor-1260	42	U

DS 7-15-92

%: SPIKE COMPOUND

FORM 1 PEST

03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-007-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L640-007

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.24

% Moisture: 36. decanted: (Y/N)_

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/26/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.6	U
319-85-7	Beta-BHC	2.6	U
319-86-8	Delta-BHC	2.6	U
58-89-9	gamma-BHC (Lindane)	2.6	U
76-44-8	Heptachlor	2.6	U
309-00-2	Aldrin	2.6	U
1024-57-3	Heptachlor epoxide	2.6	U
959-98-8	Endosulfan I	2.6	U
60-57-1	Dieldrin	5.2	U
72-55-9	4,4'-DDE	0.52	J
72-20-8	Endrin	5.2	U
33213-65-9	Endosulfan II	5.2	U
72-54-8	4,4'-DDD	5.2	U
1031-07-8	Endosulfan sulfate	5.2	U
50-29-3	4,4'-DDT	5.2	U
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.2	U
7421934	Endrin aldehyde	5.2	U
5103-71-9	alpha-Chlordane	1.0	~~JP~~ NJ 2
5103-74-2	gamma-Chlordane	2.6	U
8001-35-2	Toxaphene	260	U
12674-11-2	Aroclor-1016	52	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	52	U
53469-21-9	Aroclor-1242	52	U
12672-29-6	Aroclor-1248	52	U
11097-69-1	Aroclor-1254	52	U
11096-82-5	Aroclor-1260	52	U

7.59V

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-002-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L640-009

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

Lab File ID: 06259235.21

% Moisture: decanted: (Y/N)_

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/15/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 06/26/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

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

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
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
7421934	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

7-15-92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-003-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-013

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.25

% Moisture: 17. decanted: (Y/N)_

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/26/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.6

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.0	U
319-85-7	Beta-BHC	2.0	U
319-86-8	Delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421934	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

uJ

7-14-92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-006-B001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-04-0000

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9206L640-016

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06259235.26

% Moisture: 9.0 decanted: (Y/N)

Date Received: 06/12/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 06/16/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 06/26/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.5

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	1.8	U
319-85-7	Beta-BHC	1.8	U
319-86-8	Delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.7	U
72-55-9	4,4'-DDE	3.7	U
72-20-8	Endrin	3.7	U
33213-65-9	Endosulfan II	3.7	U
72-54-8	4,4'-DDD	3.7	U
1031-07-8	Endosulfan sulfate	3.7	U
50-29-3	4,4'-DDT	3.7	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.7	U
7421934	Endrin aldehyde	3.7	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	73	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	37	U
11096-82-5	Aroclor-1260	37	U

DS 7-14-92

FORM 1 PEST 03/90

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92061640 LAB: Roy F. Weston - Lionville

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 SDG Narrative

2.:	Is the Narrative or Cover Letter Present?	[✓]		
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 ANALYSIS

1.0 Traffic Reports and Laboratory Narrative

1.1 Are 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 SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? ___ [✓] ___

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50%-90% water, all data should be qualified as estimated (J). If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced upon receipt at the laboratory, flag all positive results "J" and all non-detects "UJ".

received @ ambient temp. - however, hand delivered same day collected no action

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? ___ [✓] ___

Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

	YES	NO	N/A

ACTION: If technical holding times are exceeded, flag all positive results as estimated (J) and sample quantitation limits (UJ) and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable (R).

3.0 Surrogate Recovery (Form II)

		YES	NO	N/A
3.1	Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices?			
	a. Low Water	[✓]	___	___
	b. Soil	[✓]	___	___
3.2	Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices?			
	a. Low Water	[✓]	___	___
	b. Soil	[✓]	___	___

ACTION: Call lab for explanation/resubmittals. If missing deliverables are unavailable, document effect in data assessments.

		YES	NO	N/A
3.3	Were outliers marked correctly with an asterisk?	[✓]	___	___

ACTION: Circle all outliers in red.

		YES	NO	N/A
3.4	Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample or blank? (60-150%)	✓	[ ]	___

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 1771-15-04-0000

Case No.: NAVAL WEAPONS/COLTSNECK RFW Lot No.: 9206L640

GC Column(1): DB608 ID: 0.53(mm) GC Column(2): DB1701 ID: 0.53(mm)

	CLIENT SAMPLE NO.	TCX1 %REC #	TCX2 %REC #	DCB1 %REC #	DCB2 %REC #	OTHER (1)	OTHER (2)	TOT OUT	
01	23-002-D001	58*	70	72	70			1	
02	23-002-D101	70	80	80	78			0	
03	23-002-D101MS	72	80	80	78			0	
04	23-002-D101MSD	58*	62	65	62			1	
05	23-007-D001	62	78	70	65			0	
06	23-003-B001	52*	58*	60	58*			3	J/UJ
07	23-006-B001	68	75	72	75			0	
08	PBLKLE0861-MB1	78	88	85	85			0	
09	PBLKLE0861-MB1 BS	85	92	90	90			0	
10	PBLKLE0861-MB1 BSD	62	75	70	68			0	

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

Water

23-002-D201	70	65	60	60		0

	YES	NO	N/A
ACTION: No qualification is done if surrogates are diluted out. If recovery for both surrogates is below the contract limit, but above 10%, flag all results for that sample 'J". If recovery is < 10% for either surrogate, qualify positive results 'J" and flag non-detects "R". If recovery is above the contract advisory limits for both surrogates qualify positive values "J".			
3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A?	[✓]	___	___
ACTION: If the RT limits are not met, the analysis may be qualified unusable (R) for that sample on the basis of professional judgement.			
3.6 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 document effect in data assessments.			
4.0 Matrix Spikes (Form III)			
4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	[ ]	___	___
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices? (1 MS/MSD must be performed for every 20 samples of similar matrix or concentration level)			
a. Low Water BS/BSD	[✓]	___	___
b. Soil	[✓]	___	___
ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.			

YES NO N/A

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

Water BS/BSD — Soil

0 out of 12 — 0 out of 12

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

Water BS/BSD — Soil

0 out of 6 — 0 out of 6

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

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 PCB TCL compounds, has a reagent/ method blank been analyzed for each SDG or every 20 samples of similar matrix or concentration or each extraction batch, whichever is more frequent? [✓] ___ ___

ACTION: If any blank data are missing, take the action specified above in 3.2. If blank data is not available, reject (R) all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence? (minimum contract requirement)

YES NO N/A

ACTION: If any blank data are missing, call lab for explanation/resubmittals. If missing deliverables are unavailable, document the effect in data assessments.

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

6.1 Do any method/instrument/reagent/cleanup 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 and corrected for % moisture when necessary. many peaks non-confirmed ___ [✓] ___

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

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

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, or calibration QC problems.

YES NO N/A

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

Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL & > 5x blank value
Flag sample result with a "U";	Report CRQL & qualify "U"	No qualification is needed

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as unusable (R).

6.3 Are there field/rinse/equipment blanks associated with every sample? [✓] ___ ___ assume water sample is

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 Systems Printouts for both columns present for all samples, blanks, MS/MSD?

a. peak resolution check [✓] ___ ___

b. performance evaluation mixtures [✓] ___ ___

c. aroclor 1016/1260 [✓] ___ ___

d. aroclors 1221, 1232, 1242, 1248, 1254 [✓] ___ ___

e. toxaphene [✓] ___ ___

f. low points individual mixtures A & B [✓] ___ ___

g. med points individual mixtures A & B [✓] ___ ___

h. high points individual mixtures A & B [✓] ___ ___

	YES	NO	N/A
i. instrument blanks	[✓]	___	___

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

7.2 Are Forms VI - PEST 1-4 present and complete for each column and each analytical sequence?	[✓]	___	___

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

7.3 Are there any transcription/calculation errors between raw data and Forms VI?	___	[✓]	___

ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and document effect in data assessments.

7.4 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the initial calibration analytical sequence? (For Initial Calibration Standards, Form VI - PEST - 1).	[✓]	___	___

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).
For aroclors, RT may be outside the RT window, but the aroclor may still be identified from the individual pattern.

7.5 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (% RSD must be < 20.0% for all analytes except for the 2 surrogates, which must not exceed 30.0 % RSD). See Form VI PEST - 2.	[✓]	___	___

	YES	NO	N/A
ACTION: If no, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When RSD >90%, flag all non-detect results for that analyte R (unusable).			
7.6 Is the resolution between any two adjacent peaks in the Resolution Check Mixture > 60.0% for both columns? (Form VI-PEST - 4)	✓		
ACTION: If no, positive results for compounds that were not adequately resolved should be qualified "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).			
7.7 Is Form VII - Pest-1 present and complete for each Performance Evaluation Mixture analyzed during the analytical sequence for both columns?	✓		
ACTION: If no, take action as specified in 3.2 above.			
7.8 Has the individual % breakdown exceeded 20.0% on either column.		✓	
- for 4,4' - DDT?		✓	
- for endrin?		✓	
Has the combined % breakdown for 4,4'- DDT/ Endrin exceeded 30.0% on either column? (required in all instances)		✓	
ACTION: 1. If any % breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (p. D-38/Pest SOW 3/90), qualify all sample analyses in the entire analytical sequence as described below.			

YES NO N/A

2. If any % breakdown has failed the QC criteria in a PEM Verification calibration, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM & qualify the data as described below.

a. 4,4'-DDT Breakdown: If 4,4'-DDT breakdown is greater than 20.%:

   i. Qualify all positive results for DDT with 'J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

   ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

b. Endrin Breakdown: If endrin breakdown is greater than 20.0%:

   i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R).

   ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ).

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

   i. Qualify all positive results for DDT and endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable (R). If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable (R).

YES NO N/A

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity (NJ). Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity (NJ).

7.9 Are the relative percent difference (RPD) values for all PEM analytes <25.0%? (Form VII-PEST-1) [✓] ___ ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration. all samples are potentially affected. If the offending standard is a verification calibration, the associated samples are those which followed the last in-control standard until the next passing standard.

7.10 Have all samples been injected within a 12 hr. period beginning with the injection of an Instrument Blank? [✓] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly.

7.11 Is Form VII - Pest-2 present and complete for each INDA and INDB Verification Calibration analyzed? [✓] ___ ___

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

7.12 Are there any transcription/calculation errors between raw data and Form VII - Pest-2? ___ [✓] ___

ACTION: If large errors exists, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments. under "Conclusions".

	YES	NO	N/A
7.13 Do all standard retention times for each INDA and INDB Verification Calibration fall within the windows established by the initial calibration sequence?	[✓]	___	___

ACTION: If no, beginning with the samples which followed 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 the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results and non-detects as unusable (R).

7.14 Are RPD values for all verification calibration standard compounds < 25.0%?	[✓]	___	___

ACTION: If the RPD is >25.0% for the compound being quantitated, qualify all associated positive results "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte which failed the criteria. If the RPD is >90%, flag all non-detects for that analyte R (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses?	[✓]	___	___

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

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses? (see CLP SOW p. D-39 & D-41/PEST)	[✓]	___	___

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

	YES	NO	N/A

9.0 Cleanup Efficiency Verification (Form IX)

9.1 Is Form IX - Pest-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.) [✓] ___ ___

ACTION: If no, take action specified in 3.2 above. If data suggests that florisil cleanup was not performed, make note in "Contract Problems/Non-Compliance".

9.2 Are all samples listed on the Pesticide Florisil Cartridge Check Form? [✓] ___ ___

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

9.3 If GPC Cleanup was performed, (mandatory for all soil sample extracts) is Form IX - Pest-2 present? [✓] ___ ___

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

ACTION: If GPC was not performed when required, make note in" Contract Problems/Non-Compliance" section of data assessment.

9.4 Are percent recoveries (% R) of the pesticide and surrogate compounds used to check the efficiency of the cleanup procedures within QC limits:

80-120% for florisil cartridge check? [✓] ___ ___

80-110% for GPC calibration? [✓] ___ ___

Qualify only the analyte(s) which fail the recovery criteria as follows:

ACTION: If % R are < 80%, qualify positive results "J" and quantitation limits "UJ". Non-detects should be qualified "R" if zero %R was obtained for pesticide compounds. Use professional judgement to qualify positive results if recoveries are greater than the upper limit.

	YES	NO	N/A

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Make note in Contract Problems/ Non-Compliance section of reviewer narrative.

NOTE: The raw data of the GPC Calibration Check analysis is evaluated for pattern similarity with previously run Aroclor standards.

10.0 Pesticide/PCB Identification

	YES	NO	N/A
10.1 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.			
10.2 Are there any transcription/calculation errors between raw data and Forms 6E, 6G, 7E, 7D, 8D, 9A, B, 10A.	___	[✓]	___
ACTION: If large errors exist, call lab for explanation/resubmittal, make necessary corrections and note error under "Conclusions".			
10.3 Are retention times (RT) of sample compounds within the established RT windows for both analyses?	[✓]	___	___
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?	[✓]	___	✓

Action: Use professional judgement to qualify positive results which were not confirmed by GC/MS. Qualify as unusable (R) all positive results which were not confirmed by second GC column analysis. Also qualify as unusable (R) all positive results not meeting RT window unless associated standard compounds are similarly biased. (see Functional Guidelines) The reviewer should use professional judgement to assign an appropriate quantitation limit.

YES NO N/A

10.4 Is the percent difference (% D) calculated for the positive sample results on the two GC columns < 25.0%? [ ] [✓] ___

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:

23-002-D001
Alpha Chlordane
60%

% Difference	Qualifier
25-50 %	J
50-90 %	JN
> 90 %	R

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the data assessment.

10.5 Check chromatograms for false negatives, especially the multiple peak compounds toxaphene and PCBs. Were there any false negatives? ___ [✓] ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed, qualify the data unusable (R).

11.0 Compound Quantitation and Reported Detection Limits

11.1 Are there any transcription/calculation errors in Form I results? Check at least two positive values. Were any errors found? ___ [✓] ___

NOTE: Single-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 whethera 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 approximated quantity (NJ). This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

	YES	NO	N/A
11.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, % moisture?	✓		

ACTION: If errors are large, call lab for explanation/resubmittal, make any necessary corrections and document effect in data assessments.

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.

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer can provide an approximated quantitation limit (UJ) for each affected compound.

12.0 Chromatogram Quality

	YES	NO	N/A
12.1 Were baselines stable?	✓		
12.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?		✓	

ACTION: Address comments under System Performance of data assessment.

	YES	NO	N/A
13.0 Field Duplicates			
13.1 Were any field duplicates submitted for PEST/PCB analysis?	Not Identified [ ]	___	___

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.

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92061640 SDG No. 23-002-D001 LABORATORY Roy F. Weston Lionville 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), "N" (presumptive evidence for the presence of the material), "U" (non-detects), "R" (unusable), or "JN" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant QC problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Reviewer's Signature: Cathy D. Scapellino Date: 8/13/1992

Verified By:_____ Date:___/_____/199__

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 whose holding time has been exceeded 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 analytes in the samples shown were qualified because of holding time:

None

No qualifications required

DATA ASSESSMENT

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse 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 and rinse blanks measure cross- contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (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

None — many peaks, but no confirmed positive hits

B) Field or rinse blank contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

No hits in one water sample

C) 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 of the continuing calibration check 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 %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the samples shown were qualified for %RSD and %D:

None

DATA ASSESSMENT

6. SURROGATES/ SYSTEM MONITORING COMPOUNDS (SMC):

All samples are spiked with surrogate/ SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/ SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below. The following analytes for the samples shown were qualified because of surrogate/ SMC recovery:

Sample 23-003-B001 3 out of 4 recoveries slightly less than QC limits

Qualify S/UJ

DATA ASSESSMENT

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and ion spectra. 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 intensities within 20% of that in the standard compound. For tentatively identified compounds (TIC), the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications. The following analytes in the samples shown were qualified for compound identification:

B) PESTICIDE FRACTION:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25% The following analytes in the samples shown were qualified because of compound identification:

Sample 23-002-D001

Alpha Chlordane @ 60%D

qualified "NJ"

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 data. The following analytes, for the samples shown, were qualified because of MS/MSD:

All Recoveries + RPDs w/in QC limits.

No qualifications required

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

None (QC Charts & limits per NEESA)

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued on next page if necessary):

good

12. CONTRACTUAL NON-COMPLIANCE:

None

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

No REs or DLs

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

good

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

Data Validation Report

August 5, 1992

Prepared for

R. F. Weston
Weston Way
West Chester, PA. 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 9, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. The was one (1) water sample and fifteen (15) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L610**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**NITRO**
01-001-S001	9206L610-001	SOIL	X
01-002-S001	9206L610-002	SOIL	X
01-003-S001	9206L610-003	SOIL	X
01-004-S001	9206L610-004	SOIL	X
01-005-S001	9206L610-005	SOIL	X
01-005-S001MS	9206L610-005MS	SOIL	X
01-005-S001MSD	9206L610-005MSD	SOIL	X
01-006-S001	9206L610-006	SOIL	X
01-008-S001	9206L610-007	SOIL	X
01-009-S001	9206L610-008	SOIL	X
01-011-S001	9206L610-009	SOIL	X
01-009-S101	9206L610-010	SOIL	X
01-012-S001	9206L610-011	SOIL	X
01-013-S001	9206L610-012	SOIL	X
01-014-S001	9206L610-013	SOIL	X
01-015-S001	9206L610-014	SOIL	X
01-016-S001	9206L610-015	SOIL	X
01-015-S201	9206L610-016	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg

DATA ASSESSMENT NARRATIVE

PICRIC ACID 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, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the Roy F. Weston Analytical Method for Picric Acid by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the laboratory summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (laboratory summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

The methodology supplied by Roy F. Weston Laboratories does not state a specified holding time criteria. However, the samples were extracted and analyzed within the holding time criteria set forth by the explosives methodologies. No action is required.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The initial calibration performed by the laboratory is acceptable per the methodology.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

PICRIC ACID ANALYSIS

MS/MSD analysis

Heartland ESI had to use good professional judgement to evaluate the MS/MSD and BS/BSD results due to the fact that the protocol does not have set QA/QC limits for the recoveries of the spike compounds. All of the recoveries were acceptable. No qualifications are required.

Method specific QA/QC

There is no method specific QA/QC.

Compound identification/quantitation

No positive results were reported.

Overall assessment

The overall quality of the data package is good.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

Roy F. Weston, Inc. - Lionville Laboratory

Picric Acid by HPLC

RFW Batch Number: 9206L610 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000

Report Date: 07/14/ 12:32

	Cust ID:	01-001-S001	01-002-S001	01-003-S001	01-004-S001	01-005-S001	01-005-S001
Sample Information	RFW#:	001	002	003	004	005	005 MS
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Picric Acid		1070 U	1110 U	1070 U	1040 U	1070 U	87 %

	Cust ID:	01-005-S001	01-006-S001	01-008-S001	01-009-S001	01-011-S001	01-009-S101
Sample Information	RFW#:	005 MSD	006	007	008	009	010
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Picric Acid		83 %	1160 U	1150 U	1050 U	1090 U	989 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. Lionville Laboratory

Picric Acid by HPLC

RFW Batch Number: 9206L610 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000

	Cust ID:	01-012-S001	01-013-S001	01-014-S001	01-015-S001	01-016-S001	01-015-S201
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L
Picric Acid		1130 U	1160 U	1110 U	1140 U	1150 U	0.90 U

	Cust ID:	BLK	BLK BS	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	92LLC082-MB1	92LLC082-MB1	92LLC084-MB1	92LLC084-MB1	92LLC084-MB1
	Matrix:	SOIL	SOIL	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/L	ug/L	ug/L
Picric Acid		1030 U	78 %	0.82 U	63 %	65 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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

Data Validation Report

August 5, 1992

Prepared for

R. F. Weston
Weston Way
West Chester, PA. 19380

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 9, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There was one (1) water sample which was received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L610.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**NITRO**
01-015-S201	9206L610-016	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg

DATA ASSESSMENT NARRATIVE

EXPLOSIVES 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, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the USATHAMA/PMRMA Programs Analytical Method for Explosives in Soil by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the RFW Data Summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (RFW Data Summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

All of the extraction (7 days) and analysis (40 days) holding times were met per the USATHAMA/PMRMA protocol.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The laboratory did not calibrate the instrument per the USATHAMA/PMRMA protocol in two ways. First and foremost, the laboratory did not analyze all of the calibration points required by the methodology. The low concentration standard (0.2X) was not analyzed which, according to the protocol, reflects the laboratory's ability to achieve the sensitivity needed for the detection limits that are reported. Although this is a deviation from the protocol, Heartland ESI will not qualify the data based upon the good compound responses in the 0.5X standard.

Secondly, the laboratory did not follow the proper procedure for the analysis of the final closing check standard that is analyzed at the end of the sequence. The methodology states that the highest concentration standard (100X) is to be analyzed at the completion of the analyses and its response must agree within:

a) 25% for that concentration from the first seven calibration curves or

EXPLOSIVES ANALYSIS

Initial Calibrations (continued)

b) thereafter, two (2) standard deviations of the mean response for the concentration for the calibrations curves.

The lack of information in the data package made it impossible to determine if the standard that was analyzed by the laboratory agreed within 25% of the initial calibration. The laboratory only reported the correlation coefficients for the initial calibration, and did not summarize the closing standard except for the recoveries of the individual analytes. In addition, the laboratory did not analyze the highest concentration standard, instead the laboratory analyzed the 10X standard.

However, based on the deliverable requirement of the methodology, Heartland ESI cannot qualify the data based on the information available.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

MS/MSD analysis

Heartland ESI had to use good professional judgement to evaluate the MS/MSD results due to the fact that the USATHAMA/PMRMA protocol does not have set QA/QC limits for the recoveries of the spike compounds. The MS/MSD did exhibit acceptable recoveries for all the target explosive compounds.

Method specific QA/QC

The laboratory did not analyze the correct number of QA/QC samples. The methodology states that two (2) 10X and one (1) 2X spike blanks be analyzed for control charting. The laboratory only analyzed one (1) of the 10X spikes and the control charts were not provided in the package to access the daily quality control.

EXPLOSIVES ANALYSIS

Compound identification/quantitation

No qualifications are required.

Overall assessment

The overall quality of the data package is fair. The laboratory deviated from the required protocol in some instances.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory

QL denotes the qualifier used by the data validation firm

+ in the DL column denotes a positive result

- in the DL column denotes a non detect result

Roy F. Weston, Inc. - Lionville Laboratory
Explosives [illegible]water by HPLC

RFW Batch Number: 9206L610 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000

Report Date: 07/14/9[illegible]5:01
Page: 1

Sample Information	Cust ID:	01-015-S201		BLK		BLK BS		BLK BS		BLK BSD	
	RFW#:	016		92LLC087-MB1		92LLC087-MB1		92LLC087-MB2		92LLC087-MB2	
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L	
			fl		fl		fl		fl		fl
HMX		1.30	U	1.30	U	108	%	100	%	98	%
RDX		0.63	U	0.63	U	113	%	100	%	105	%
1,3,5-TNB		0.56	U	0.56	U	117	%	100	%	102	%
1,3-DNB		0.61	U	0.61	U	102	%	109	%	103	%
Nitrobenzene		1.13	U	1.13	U	101	%	103	%	101	%
TETRYL		0.66	U	0.66	U	92	%	93	%	90	%
2,4,6-TNT		0.78	U	0.78	U	96	%	102	%	99	%
2,6-DNT		0.55	U	0.55	U	93	%	100	%	99	%
2,4-DNT		0.60	U	0.60	U	95	%	101	%	100	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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Data Validation Report

August 5, 1992

Prepared for

R. F. Weston
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This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program June 9, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were fifteen (15) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L610.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**. Form Is for MS/MSD samples are not annotated.

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**NITRO**
01-001-S001	9206L610-001	SOIL	X
01-002-S001	9206L610-002	SOIL	X
01-003-S001	9206L610-003	SOIL	X
01-004-S001	9206L610-004	SOIL	X
01-005-S001	9206L610-005	SOIL	X
01-005-S001MS	9206L610-005MS	SOIL	X
01-005-S001MSD	9206L610-005MSD	SOIL	X
01-006-S001	9206L610-006	SOIL	X
01-008-S001	9206L610-007	SOIL	X
01-009-S001	9206L610-008	SOIL	X
01-011-S001	9206L610-009	SOIL	X
01-009-S101	9206L610-010	SOIL	X
01-012-S001	9206L610-011	SOIL	X
01-013-S001	9206L610-012	SOIL	X
01-014-S001	9206L610-013	SOIL	X
01-015-S001	9206L610-014	SOIL	X
01-016-S001	9206L610-015	SOIL	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg

DATA ASSESSMENT NARRATIVE

EXPLOSIVES 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, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the USATHAMA/PMRMA Programs Analytical Method for Explosives in Soil by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the RFW Data Summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (RFW Data Summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

All of the extraction (7 days) and analysis (40 days) holding times were met per the USATHAMA/PMRMA protocol.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The laboratory did not calibrate the instrument per the USATHAMA/PMRMA protocol in two ways. First and foremost, the laboratory did not analyze all of the calibration points required by the methodology. The low concentration standard (0.2X) was not analyzed which, according to the protocol, reflects the laboratory's ability to achieve the sensitivity needed for the detection limits that are reported. Although this is a deviation from the protocol, Heartland ESI will not qualify the data based upon the good compound responses in the 0.5X standard.

Secondly, the laboratory did not follow the proper procedure for the analysis of the final closing check standard that is analyzed at the end of the sequence. The methodology states that the highest concentration standard (100X) is to be analyzed at the completion of the analyses and its response must agree within:

a) 25% for that concentration from the first seven calibration curves or

EXPLOSIVES ANALYSIS

Initial Calibrations (continued)

b) thereafter, two (2) standard deviations of the mean response for the concentration for the calibrations curves.

The lack of information in the data package made it impossible to determine if the standard that was analyzed by the laboratory agreed within 25% of the initial calibration. The laboratory only reported the correlation coefficients for the initial calibration, and did not summarize the closing standard except for the recoveries of the individual analytes. In addition, the laboratory did not analyze the highest concentration standard, instead the laboratory analyzed the 10X standard.

However, based on the deliverable requirement of the methodology, Heartland ESI cannot qualify the data based on the information available.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

MS/MSD analysis

Heartland ESI had to use good professional judgement to evaluate the MS/MSD results due to the fact that the USATHAMA/PMRMA protocol does not have set QA/QC limits for the recoveries of the spike compounds. The MS/MSD exhibited acceptable recoveries for all the target explosive compounds. It should be noted that HMX and RDX exhibited recoveries less than 80% (79% and 77% respectively) in one (1) of the BS/BSD; however, qualifications are not required.

Method specific QA/QC

The control charts were not provided in the package to access the daily quality control. The proper closing standards were analyzed per the methodology. No qualifications are required.

EXPLOSIVES ANALYSIS

Compound identification/quantitation

No qualifications are required.

Overall assessment

The overall quality of the data package is fair. The laboratory deviated from the required protocol in some instances.

GLOSSARY OF DATA QUALIFIERS

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SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS

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* DL denotes the Form I qualifier supplied by the laboratory

QL denotes the qualifier used by the data validation firm

+ in the DL column denotes a positive result

- in the DL column denotes a non detect result

Roy F. Weston, Inc. - Lionville Laboratory
Explosives in soil by HPLC

RFW Batch Number: 9206L610 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000 Report Date: 07/17/92 1[illegible]16 Page: [illegible]-1

	Cust ID:	01-001-S001	01-002-S001	01-003-S001	01-004-S001	01-005-S001	01-005-S001
Sample Information	RFW#:	001	002	003	004	005	005 MS
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
HMX		1.22 U	1.42 U	1.28 U	1.22 U	1.35 U	82 %
RDX		0.95 U	1.10 U	0.99 U	0.94 U	1.04 U	84 %
1,3,5-TNB		2.02 U	2.34 U	2.11 U	2.01 U	2.22 U	85 %
1,3-DNB		0.57 U	0.66 U	0.59 U	0.57 U	0.63 U	85 %
Nitrobenzene		0.41 U	0.47 U	0.42 U	0.40 U	0.45 U	86 %
TETRYL		4.82 U	5.60 U	5.04 U	4.80 U	5.31 U	72 %
2,4,6-TNT		1.85 U	2.15 U	1.94 U	1.84 U	2.04 U	76 %
2,6-DNT		0.39 U	0.45 U	0.40 U	0.38 U	0.42 U	85 %
2,4-DNT		0.41 U	0.47 U	0.42 U	0.40 U	0.45 U	81 %

	Cust ID:	01-005-S001	01-006-S001	01-008-S001	01-009-S001	01-011-S001	01-009-S101
Sample Information	RFW#:	005 MSD	006	007	008	009	010
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
HMX		83 %	1.31 U	1.28 U	1.29 U	1.30 U	1.31 U
RDX		82 %	1.01 U	0.99 U	0.99 U	1.00 U	1.01 U
1,3,5-TNB		85 %	2.15 U	2.11 U	2.12 U	2.14 U	2.16 U
1,3-DNB		84 %	0.61 U	0.60 U	0.60 U	0.61 U	0.61 U
Nitrobenzene		85 %	0.43 U	0.42 U	0.43 U	0.43 U	0.43 U
TETRYL		75 %	5.15 U	5.06 U	5.06 U	5.13 U	5.17 U
2,4,6-TNT		79 %	1.98 U	1.94 U	1.94 U	1.97 U	1.99 U
2,6-DNT		88 %	0.41 U	0.40 U	0.41 U	0.41 U	0.41 U
2,4-DNT		84 %	0.43 U	0.42 U	0.43 U	0.43 U	0.43 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Roy F. Weston, Inc. - Lionville Laboratory
Explosives in soil by HPLC

RFW Batch Number: 9206L610 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000 Report Date: 07/17/92 11:16 Page: 2

	Cust ID:	01-012-S001	01-013-S001	01-014-S001	01-015-S001	01-016-S001	BLK
Sample Information	RFW#:	011	012	013	014	015	92LLC079-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g
HMX		1.33 U	1.38 U	1.37 U	1.37 U	1.37 U	1.27 U
RDX		1.03 U	1.07 U	1.05 U	1.06 U	1.06 U	0.98 U
1,3,5-TNB		2.19 U	2.28 U	2.25 U	2.25 U	2.25 U	2.09 U
1,3-DNB		0.62 U	0.64 U	0.64 U	0.64 U	0.64 U	0.59 U
Nitrobenzene		0.44 U	0.46 U	0.45 U	0.45 U	0.45 U	0.42 U
TETRYL		5.24 U	5.44 U	5.38 U	5.39 U	5.39 U	5.00 U
2,4,6-TNT		2.01 U	2.09 U	2.07 U	2.07 U	2.07 U	1.92 U
2,6-DNT		0.42 U	0.44 U	0.43 U	0.43 U	0.43 U	0.40 U
2,4-DNT		0.44 U	0.46 U	0.45 U	0.45 U	0.45 U	0.42 U

	Cust ID:	BLK BS	BLK BS	BLK BSD
Sample Information	RFW#:	92LLC079-MB1	92LLC079-MB2	92LLC079-MB2
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	ug/g	ug/g	ug/g
HMX		85 %	79 %	82 %
RDX		84 %	77 %	80 %
1,3,5-TNB		92 %	85 %	88 %
1,3-DNB		93 %	86 %	88 %
Nitrobenzene		94 %	87 %	88 %
TETRYL		66 %	77 %	79 %
2,4,6-TNT		89 %	82 %	83 %
2,6-DNT		96 %	88 %	90 %
2,4-DNT		90 %	85 %	86 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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