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

N60478.AR.000233
NWS EARLE
5090.3a

DATA VALIDATION

REPORT

ORIGINAL

Client Name:	**Roy F. Weston, Inc.**
Site Name:	**NWS - Earle, ColtsNeck, NJ**
RFW Lot No.:	**9206L666**
QA/QC Level:	**NEESA Level D - EPA Region II**
Fractions:	**VOA, SVOA, Pesticide/Aroclors, Metals, Nitro/PICA, Wet Chem.**
Volume Number:	**1 of 1**

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

Data Validation Report

August 20, 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 16, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were three (3) soil samples with one (1) MS/MSD and six (6) water 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 9206L666.**

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The VOA CLP fraction has been validated utilizing method specific requirements, Region II SOP NO. HW-6, January, 1992, Revision 8, 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**
01-002-M001	9206L666-001	WATER	X
01-002-M001MS	9206L666-001	WATER	X
01-002-M001MSD	9206L666-001	WATER	X
01-002-M201	9206L666-002	WATER	X
06-003-M001	9206L666-003	WATER	X
12-002-W001	9206L666-004	WATER	X
06-002-D201	9206L666-005	SOIL	X
06-002-D201RE	9206L666-005	SOIL	X
06-002-D201	9206L666-006	SOIL	X
17-003-D001	9206L666-007	SOIL	X
17-003-D001MS	9206L666-007	SOIL	X
17-003-D001MSD	9206L666-007	SOIL	X
TRIP BLANK	9206L666-008	WATER	X
12-002-D001	9206L666-009	SOIL	X
12-002-D001RE	9206L666-009	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, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case# 9206L666

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, 06/22/92, had the following compounds with %RSDs greater than 30% RSD. Qualifications are not required because samples were not analyzed following the calibration.

acetone

Initial Calibrations (continued)

Specific Findings:

2. The initial calibration analyzed on, 06/18/92, had the calibration criteria compound 1,1,2,2-tetrachloroethane with an average RRF less than the required minimum 0.500 but the RRF was greater than 0.05. Qualifications are not required.

3. The initial calibration analyzed on, 06/22/92, had the calibration criteria compound 1,1,2,2-tetrachloroethane with an average RRF less than the required minimum 0.500 but the RRF was greater than 0.05. Qualifications are not required.

Continuing calibrations

All but one (1) of the continuing calibrations that were analyzed with this data package required qualifications for non compliant %Ds and low RRFs.

Specific Findings

4. For the samples listed below, the continuing calibration, B062219, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLV103	2-butanone
12-002-W001	
01-002-M001MS	
01-002-M001MSD	

5. For the samples listed below, the continuing calibration, Y062302, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVY201	chloroethane
06-002-D001	
17-003-D001	
17-003-D001MS	
17-003-D001MSD	
12-002-D001	

Continuing Calibrations (continued)

Specific Findings:

6. For the samples listed below, the continuing calibration, Y062402, contained compounds with %Ds greater than 25% but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVY202	bromomethane
06-002-D001RE	
12-002-D001RE	

7. All of the continuing calibrations had the calibration criteria compound 1,1,2,2-tetrachloroethane with an average RRF less than the required minimum 0.500, but the RRF was greater than 0.05. Qualifications are not required.

Internal Standards

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

Specific Findings:

8. 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).

06-002-D001	bromochloromethane
	1,4-difluorobenzene
	chlorobenzene-d_5
17-003-D001	bromochloromethane
	1,4-difluorobenzene
	chlorobenzene-d_5
17-003-D001MSD	bromochloromethane
	1,4-difluorobenzene
	chlorobenzene-d_5
12-002-D001	bromochloromethane
	1,4-difluorobenzene
	chlorobenzene-d_5
06-002-D001RE	chlorobenzene-d_5
12-002-D001RE	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:

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

   methylene chloride - U
   01-002-M201
   06-002-D001
   17-003-D001
   17-003-D001MS
   17-003-D001MSD
   12-002-D001
   06-002-D001RE
   12-002-D001RE

   methylene chloride - CRQL
   01-002-M001
   06-003-M001
   06-002-D201
   12-002-W001
   01-002-M001MS
   01-002-M001MSD

   acetone - NA
   17-003-D001
   17-003-D001MS
   17-003-D001MSD
   12-002-D001

Method Blanks (continued)

Specific Findings:

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

   acetone - U
   01-002-M201
   06-003-M001

   acetone - CRQL
   06-003-M001

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:

10. The following samples exhibited surrogate recoveries above the QA/QC limits. Qualify all positive results as estimated (J).

06-002-D001	toluene-d_8
	bromofluorobenzene
	1,2-dichloroethane-d_4

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD analyzed exhibited percent recoveries and RPDs that 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:

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

    06-002-D001
    12-002-D001

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
VBLKLV103 12-002-W001 01-002-M001MS 01-002-M001MSD	2-butanone	+	J	4
VBLKLVY201 06-002-D001 17-003-D001 17-003-D001MS 17-003-D001MSD 12-002-D001	chloroethane	+	J	5
VBLKLVY202 06-002-D001RE 12-002-D001RE	bromomethane	+	J	6
	All analytes for the associated internal standard	+/-	J/UJ	8
06-002-D001	bromochloromethane 1,4-difluorobenzene chlorobenzene-d_5			
17-003-D001	bromochloromethane 1,4-difluorobenzene chlorobenzene-d_5			
17-003-D001MSD	bromochloromethane 1,4-difluorobenzene chlorobenzene-d_5			
12-002-D001	bromochloromethane 1,4-difluorobenzene chlorobenzene-d_5			
06-002-D001RE	chlorobenzene-d_5			
12-002-D001RE	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
01-002-M201 06-002-D001 17-003-D001 17-003-D001MS 17-003-D001MSD 12-002-D001 06-002-D001RE 12-002-D001RE	methylene chloride	+	U	9
01-002-M001 06-003-M001 06-002-D201 12-002-W001 01-002-M001MS 01-002-M001MSD	methylene chloride	+	CRQL	9
17-003-D001 17-003-D001MS 17-003-D001MSD 12-002-D001	acetone	+	NA	9
01-002-M201 06-003-M001	acetone	+	U	9
06-003-M001	acetone	+	CRQL	9
06-002-D001	All analytes for surrogates toluene-d_8 bromofluorobenzene 1,2-dichloroethane-d_4	+	J	10
06-002-D001 12-002-D001	all analytes	+/-	R	11

* 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 000296

CLIENT SAMPLE NO.

01-002-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER — Lab Sample ID: 9206L666-001

Sample wt/vol: 5.00 (g/mL) ML — Lab File ID: B062215

Level: (low/med) LOW — Date Received: 06/16/92

% Moisture: not dec. — Date Analyzed: 06/22/92

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 ~~7~~	~~JB~~ U 9
67-64-1	Acetone	10 ~~5~~	~~JB~~ U 9
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

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

000297

CLIENT SAMPLE NO.

01-002-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-001

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

Lab File ID: B062215

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/L

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

FORM 1 VOA-TIC 3/90

1A 0000305 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

01-002-M201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: B062212

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: not dec. 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/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	12	~~B~~ U 9
67-64-1	Acetone	17	~~B~~ U 9
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	4	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.

01-002-M201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-002

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

Lab File ID: B062212

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/L

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000316

CLIENT SAMPLE NO.

06-003-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-003

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

Lab File ID: B062216

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/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 ~~7~~	~~JB~~ U 9
67-64-1	Acetone	22	~~B~~ U 9
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	20	
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

000317

CLIENT SAMPLE NO.

06-003-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-003

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

Lab File ID: B062216

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/L

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000327

CLIENT SAMPLE NO.

12-002-W001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: B062221

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: not dec. Date Analyzed: 06/23/92

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	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	~~4~~ 10	~~JB~~ U 9
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

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

0000328

CLIENT SAMPLE NO.

12-002-W001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-004

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

Lab File ID: B062221

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

Date Analyzed: 06/23/92

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 3 3 4

CLIENT SAMPLE NO.

06-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-005

Sample wt/vol: 4.90 (g/mL) G Lab File ID: Y062307

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: not dec. 17 Date Analyzed: 06/23/92

GC Column: SP1000 ID: 2.00(mm) Dilution Factor: 1.02

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 R
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	20	B
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET 000335

TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: Y062307

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec. 17

Date Analyzed: 06/23/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.02

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 000341

CLIENT SAMPLE NO.

06-002-D001RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005

Sample wt/vol: 5.10 (g/mL) G

Lab File ID: Y062404

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec. 17

Date Analyzed: 06/24/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 0.980

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	18	~~B~~U 9
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~~ 5 8
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 000347

CLIENT SAMPLE NO.

06-002-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-006

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

Lab File ID: B062213

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/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 ~~7~~	~~JB~~ U 9
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

0000348

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-006

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

Lab File ID: B062213

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/L

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000356

CLIENT SAMPLE NO.

17-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-007

Sample wt/vol: 5.10 (g/mL) G Lab File ID: Y062308

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: not dec. 22 Date Analyzed: 06/23/92

GC Column: SP1000 ID: 2.00(mm) Dilution Factor: 0.980

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 UJ	8
74-83-9	Bromomethane	13	U	
75-01-4	Vinyl Chloride	13	U	
75-00-3	Chloroethane	13	U	
75-09-2	Methylene Chloride	20	~~B~~ UJ	9, 8
67-64-1	Acetone	150	~~B~~ J	9, 8
75-15-0	Carbon Disulfide	13	U UJ	8
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	42	J	8
71-55-6	1,1,1-Trichloroethane	13	U UJ	8
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

VOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

0000357

CLIENT SAMPLE NO.

17-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-007

Sample wt/vol: 5.10 (g/mL) G

Lab File ID: Y062308

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec. 22

Date Analyzed: 06/23/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 0.980

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

0000367

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: 9206L666-008

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

Lab File ID: B062214

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/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 ~~8~~	~~JB~~ U 9
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

VOLATILE ORGANICS ANALYSIS DATA SHEET 000368

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: 9206L666-008

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

Lab File ID: B062214

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec.

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/L

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

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET 000374

CLIENT SAMPLE NO.

12-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT — Lab Sample ID: 9206L666-009

Sample wt/vol: 4.90 (g/mL) G — Lab File ID: Y062311

Level: (low/med) LOW — Date Received: 06/16/92

% Moisture: not dec. 48 — Date Analyzed: 06/23/92

GC Column: SP1000 ID: 2.00(mm) — Dilution Factor: 1.02

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	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	22	B
67-64-1	Acetone	230	B
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	20	U
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	57	
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Xylene (total)	20	U

1E

000375

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

12-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-009

Sample wt/vol: 4.90 (g/mL) G

Lab File ID: Y062311

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: not dec. 48

Date Analyzed: 06/23/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.02

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 000385

CLIENT SAMPLE NO.

12-002-D001RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-009

Sample wt/vol: 4.90 (g/mL) G Lab File ID: Y062407

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: not dec. 48 Date Analyzed: 06/24/92

GC Column: SP1000 ID: 2.00(mm) Dilution Factor: 1.02

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	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	20	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	28	~~B~~ U 9
67-64-1	Acetone	210	~~B~~ 9
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	20	U
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	20	U
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	59	
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	20	U
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-pentanone	20	U 5 8
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	20	U
108-88-3	Toluene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Xylene (total)	20	U

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92061666 LAB: RFW - Lionville

SITE: Coltsneck

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

2.1 Is the Narrative or Cover Letter Present? [✓] ___ ___

2.2 Are Case Number and/or SAS number contained in the Narrative or Cover letter? [✓] ___ ___

3.0 Data Validation Checklist

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

Does this package contain:

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

Action: Complete corresponding parts of checklist.

	YES	NO	N/A
PART A: VOA 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 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

08-19-92

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?	✓	[✓] AH 08-12-92	___
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
0 out of 10	1 out of 10

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

Water	Soils
0 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)

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.

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.

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

DFB 08-19-92

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)

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.

	YES	NO	N/A
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)

	YES	NO	N/A
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
06-002-D001	BCM	14451	29229	116916
	DFB	63146	143053	572212
	CBZ	48209	142519	570076
17-003-D001	BCM	27003	29229	11614
	DFB	141884	143053	572212
	CBZ	103233	142519	570076

(Attach additional sheets if necessary.)

14. Internal Standard (Form VIII) continued

17-003-D001MSD	BCM	27026	29229	116916
	DFB	129454	143053	572212
	CBZ	89918	142519	570076
12-002-D001	BCM	22527	29229	116916
	DFB	108229	143053	572212
	CBZ	72627	142519	570076
06-002-D001RE	CBZ	88621	107114	428454
12-002-D001RE	CBZ	82705	107114	428454

	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").

	YES	NO	N/A
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

	YES	NO	N/A
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. 92061666 SDG No._____ 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: 08/19/1992

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

VBLKW	B062204	01-002-M201	Methylene chloride 12 U	Acetone 17 U
methylene chloride	4	01-002-M001	7 CRQL	5 CRQL
Acetone	6	06-003-M001	7 CRQL	22 U
		06-002-D201	7 CRQL	
		TRIP BLANK	8 CRQL	

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

not identified

C) Trip blank contamination

TRIP Blank B062214
methylene chloride 8 NA

2. Blank Contamination: (Continued)

VBIKW B062220

methylene chloride 2

	methylene chloride
12-002-W001	4 CRQL
01-002-M001MS	1
01-002-M001MSD	2

VBIKS Y062303

methylene chloride 3

Acetone 5

	methylene chloride	Acetone
06-002-D001	20 U	150 NA
17-003-D001	20 U	190 NA
17-003-D001MS	21 U	350 NA
17-003-D001MSD	19 U	230 NA
12-002-D001	22 U	

VBIKS Y062403

methylene chloride 8

Acetone 14

	methylene chloride	Acetone
06-002-D001RE	18U	
12-002-D001RE	28U	210NA

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 Cal. 06/18/92

No Samples 1,1,2,2-Tetrachloroethane 0.439

Continuing Cal. B062202

VBIKLWB102 1,1,2,2-Tetrachloroethane 0.424
01-002-M201
06-002-D201
TRIP Blank
01-002-M001
06-003-M001

Continuing Cal. B062219

VBIKLVB103 1,1,2,2-TCE 0.453
12-002-W001
01-002-M001MS
01-002-M001MSD

Initial Cal 06/22/92 OK

Continuing Cal. Y062302

VBIKLVY201 1,1,2,2-TCE 0.488
06-002-D001
17-003-D001
17-003-D001MS
17-003-D001MSD
12-002-D001

Continuing Cal. Y062402

VBIKLVY202 1,1,2,2-TCE 0.468
06-002-D001RE
12-002-D001RE

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 Cal 06/18/92 OK

Continuing Cal. B062202 OK

Continuing Cal. B062219

VBIKLV103 2-butanone -28.9
12-002-W001
01-002-M001MS
01-002-M001MSD

Initial Cal. 06/22/92

no samples Acetone 43.3

Continuing Cal Y062302

VBIKLVY201 Chloroethane -33.0
06-002-D001
07-003-D001
17-003-D001MS
17-003-D001MSD
12-002-D001

Continuing Cal. Y062402

VBIKLVY202 Bromomethane 26.7
06-002-D001RE
12-002-D001RE

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:

	TOL	BFB	DCE	
06-002-D001	164	137	145	J

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:

Continuing Cal	Y062302
06-002-D001	BCM
	DFB
	CBZ
17-003-D001	BCM
	DFB
	CBZ
17-003-D001MSD	BCM
	DFB
	CBZ
12-002-D001	BCM
	DFB
	CBZ

Continuing Cal	Y062402
06-002-D001RE	CBZ
12-002-D001RE	CBZ

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:

17-003-D001 MSD Toluene 140% NA

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:

06-002-D001RE
12-002-D001RE

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 20, 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 15 and 16, 1992 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were seven (7) soil samples with one (1) MS/MSD and four (4) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L666**.

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, January, 1992, Revision 8, 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**
01-002-M001	9206L666-001	WATER	X
01-002-M201	9206L666-002	WATER	X
06-003-M001	9206L666-003	WATER	X
06-002-D201	9206L666-005	SOIL	X
06-002-D201MS	9206L666-005	SOIL	X
06-002-D201MSD	9206L666-005	SOIL	X
06-002-D201	9206L666-006	SOIL	X
17-003-D001	9206L666-007	SOIL	X
12-002-D001	9206L666-009	SOIL	X
15-001-D001	9206L666-010	SOIL	X
15-001-D001RE	9206L666-010	SOIL	X
15-002-D001	9206L666-011	SOIL	X
15-003-D001	9206L666-012	SOIL	X
15-004-D001	9206L666-013	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, and NEESA Level C and D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case# 9206L666

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

All but one (1) of 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, 07/02/91, contained compounds with %RSDs greater than 30% RSD. No qualifications are required because samples were not analyzed following the calibration.

   3-nitroaniline
   carbazole

Initial Calibration (continued)

Specific Findings:

2. The initial calibration on, 07/08/91, contained compounds with %RSDs greater than 30% RSD. No qualifications are required because samples were not analyzed following the calibration.

   carbazole

3. The initial calibration on, 07/13/91, contained compounds with %RSDs greater than 30% RSD. No qualifications are required because samples were not analyzed following the calibration.

   4-nitroaniline
   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:

4. 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).

SBLKLE0904	2-nitrophenol
SBLKLE0904-BS	hexachlorocyclopentadiene
	3-nitroaniline

5. 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).

SBLKLE0904	4-nitroaniline
SBLKLE0904-BS	

Continuing Calibrations (continued)

Specific Findings:

6. For the samples listed below, the continuing calibration, A070602, contained compounds with %Ds greater than 90% D. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

SBLKLE0904	carbazole
SBLKLE0904-BS	

7. For the samples listed below, the continuing calibration, A070910, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

17-003-D001	2-methylphenol
15-001-D001	2,4-dinitrophenol
15-003-D001	4-nitrophenol
	pentachlorophenol
	butylbenzylphthalate
	bis(2-ethylhexyl)phthalate

8. For the samples listed below, the continuing calibration, A070910, 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).

17-003-D001	carbazole
15-001-D001	
15-003-D001	

9. For the samples listed below, the continuing calibration, A070910, contained compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

17-003-D001	2,4-dinitrophenol
15-001-D001	
15-003-D001	

Continuing Calibrations (continued)

Specific Findings:

10. For the samples listed below, the continuing calibration, A071002, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

SBLKLE0888	2,4-dinitrophenol
SBLKLE0888-BS	4-nitroaniline
SBLKLE0888-BS	
12-002-D001	
15-002-D001	
15-004-D001	
15-001-D001DL	

11. For the samples listed below, the continuing calibration, A071002, contained compounds with %Ds greater than 90% D. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

SBLKLE0888	carbazole
SBLKLE0888-BS	
SBLKLE0888-BS	
12-002-D001	
15-002-D001	
15-004-D001	
15-001-D001DL	

12. For the samples listed below, the continuing calibration, A071002, contained compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

SBLKLE0888	2,4-dinitrophenol
SBLKLE0888-BS	
SBLKLE0888-BS	
12-002-D001	
15-002-D001	
15-004-D001	
15-001-D001DL	

Continuing Calibrations (continued)

Specific Findings:

13. For the samples listed below, the continuing calibration, A071011, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

01-002-M001	2-methylphenol
01-002-M201	3-nitroaniline
06-003-M001	4-nitroaniline
06-002-D201	4,6-dinitro-2-methylphenol
	dibenzo(a,h)anthracene

14. For the samples listed below, the continuing calibration, A071011, contained compounds with %Ds greater than 90% D. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

01-002-M001	carbazole
01-002-M201	
06-003-M001	
06-002-D201	

15. For the samples listed below, the continuing calibration, A071502, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

06-002-D001MS	4-chloroaniline
06-002-D001MSD	2,4,6-tribromophenol

16. For the samples listed below, the continuing calibration, A071502, contained compounds with %Ds greater than 90% D. Qualify all positive results for these compounds as estimated (J) and reject all non detects (R).

06-002-D001MS	carbazole
06-002-D001MSD	

Continuing Calibrations (continued)

Specific Findings:

17. For the samples listed below, the continuing calibration, J073102, contained compounds with %Ds greater than 25% D but less than 50% D. Qualify all positive results for these compounds as estimated (J).

06-002-D001	2,4-dinitrophenol pentachlorophenol

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, diethylphthalate, phenol 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:

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

<u>bis(2-ethylhexyl)phthalate - U</u>
01-002-M001

<u>bis(2-ethylhexyl)phthalate - CRQL</u>
01-002-M201
06-003-M001
06-002-D201

Method Blanks (continued)

Specific findings:

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

di-n-butylphthalate - CRQL
01-002-M001
01-002-M201
06-003-M001
06-002-D201

phenol - CRQL
01-002-M201
06-003-M001
06-002-D201

diethylphthalate - CRQL
06-003-M001
06-002-D201

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

samples	rejected TICs
01-002-M001	9
01-002-M201	3,4,5,6
06-003-M001	3,4,11,15
06-002-D201	3,4,17,20,26
17-003-D001	1,2,4,5,6,7,8,10,13
15-001-D001	1,2,3,4,5
15-003-D001	1,2,3,5
12-002-D001	3,4
15-002-D001	1,2,3,4,5,6,7,9,13
15-004-D001	1,2,3,4,5,7,11

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 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

Specific Findings:

20. For sample 15-001-D001, reject results for diethylphthalate and report the results from sample 15-001-D001DL. For sample 15-001-D001DL, reject all results except for diethylphthalate.

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
SBLKLE0904 SBLKLE0904-BS	2-nitrophenol hexachlorocyclopentadiene 3-nitroaniline	+	J	4
SBLKLE0904 SBLKLE0904-BS	4-nitroaniline	+/-	J/UJ	5
SBLKLE0904 SBLKLE0904-BS	carbazole	+/-	J/R	6
17-003-D001 15-001-D001 15-003-D001	2-methylphenol 2,4-dinitrophenol 4-nitrophenol pentachlorophenol butylbenzylphthalate bis(2-ethylhexyl)phthalate	+	J	7
17-003-D001 15-001-D001 15-003-D001	carbazole	+/-	J/UJ	8
17-003-D001 15-001-D001 15-003-D001	2,4-dinitrophenol	+/-	J/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

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
SBLKLE0888 SBLKLE0888-BS SBLKLE0888-BS 12-002-D001 15-002-D001 15-004-D001 15-001-D001DL	2,4-dinitrophenol 4-nitroaniline	+	J	10
SBLKLE0888 SBLKLE0888-BS SBLKLE0888-BS 12-002-D001 15-002-D001 15-004-D001 15-001-D001DL	carbazole	+/-	J/R	11
SBLKLE0888 SBLKLE0888-BS SBLKLE0888-BS 12-002-D001 15-002-D001 15-004-D001 15-001-D001DL	2,4-dinitrophenol	+/-	J/R	12
01-002-M001 01-002-M201 06-003-M001 06-002-D201	2-methylphenol 3-nitroaniline 4-nitroaniline 4,6-dinitro-2-methylphenol dibenzo(a,h)anthracene	+	J	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
01-002-M001 01-002-M201 06-003-M001 06-002-D201	carbazole	+/-	J/R	14
06-002-D001MS 06-002-D001MSD	4-chloroaniline 2,4,6-tribromophenol	+	J	15
06-002-D001MS 06-002-D001MSD	carbazole	+/-	J/R	16
06-002-D001	2,4-dinitrophenol pentachlorophenol	+	J	17
01-002-M001	bis(2-ethylhexyl) phthalate	+	U	18
01-002-M201 06-003-M001 06-002-D201	bis(2-ethylhexyl) phthalate	+	CRQL	18
01-002-M001 01-002-M201 06-003-M001 06-002-D201	di-n-butyl phthalate	+	CRQL	18
01-002-M201 06-003-M001 06-002-D201	phenol	+	CRQL	18
06-003-M001 06-002-D201	diethylphthalate	+	CRQL	18

* 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	19
01-002-M001	9			
01-002-M201	3,4,5,6			
06-003-M001	3,4,11,15			
06-002-D201	3,4,17,20,26			
17-003-D001	1,2,4,5,6,7,8,10,13			
15-001-D001	1,2,3,4,5			
15-003-D001	1,2,3,5			
12-002-D001	3,4			
15-002-D001	1,2,3,4,5,6,7,9,13			
15-004-D001	1,2,3,4,5,7,11			
15-001-D001	diethylphthalate	+	R	20
15-001-D001DL	All analytes except for diethylphthalate	+/-	R	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

CLIENT SAMPLE NO.

01-002-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-001

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

Lab File ID: A071018

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/10/92

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

000048

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

01-002-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-001

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

Lab File ID: A071018

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/10/92

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~~ R 14
84-74-2	Di-n-butylphthalate	10 ~~2~~	~~JB~~ U 18
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	10	~~JB~~ U 18
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 000049 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

01-002-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-001

Sample wt/vol: 990 (g/mL) ML Lab File ID: A071018

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/10/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.44	3	J
2.	CYCLOHEXENONE	8.86	3	J
3. 105-60-2	CAPROLACTAM	14.22	2	J
4.	BISDIMETHYLETHYLPHENOL	17.53	2	J
5.	UNKNOWN	21.44	3	J
6.	UNKNOWN	22.28	10	J
7.	UNKNOWN	23.79	8	J
8.	UNKNOWN	24.02	3	J
9.	ADIPATE	24.08	~~5~~	~~JB~~ R 19
10.	UNKNOWN	27.98	30	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

01-002-M201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-002

Sample wt/vol: 970 (g/mL) ML

Lab File ID: A071019

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/10/92

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 ~~0.8~~	~~JB~~ U 18
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 000067

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

01-002-M201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-002

Sample wt/vol: 970 (g/mL) ML Lab File ID: A071019

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/10/92

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~~ R 14
84-74-2	Di-n-butylphthalate	10 ~~2~~	~~JB~~ U 18
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	10 ~~9~~	~~JB~~ U 18
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 000068

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

01-002-M201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-002

Sample wt/vol: 970 (g/mL) ML

Lab File ID: A071019

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	6.36	2	J
2.	UNKNOWN	7.86	40	J
3.	UNKNOWN	8.03	~~9~~	~~JB~~ 19
4.	UNKNOWN	8.18	~~4~~	~~JB~~
5.	ADIPATE	24.08	~~7~~	~~JB~~
6.	UNKNOWN	27.98	~~20~~	~~JB~~

FORM 1 SV-TIC 3/90

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 0 2 0 0 0 8 2

CLIENT SAMPLE NO.

06-003-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-003

Sample wt/vol: 990 (g/mL) ML Lab File ID: A071020

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/10/92

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 ~~1~~	~~JB~~ U 18
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 000083

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-003

Sample wt/vol: 990 (g/mL) ML Lab File ID: A071020

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/10/92

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	~~0.9~~ 10	~~JB~~ U 18
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~~ R 14
84-74-2	Di-n-butylphthalate	~~2~~ 10	~~JB~~ U 18
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	~~7~~ 10	~~JB~~ U 18
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

000084

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-003-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-003

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

Lab File ID: A071020

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 17

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.02	3	JA
2.	UNKNOWN	7.45	5	J
3.	UNKNOWN	8.15	~~10~~	~~J~~ R 19
4.	UNKNOWN	8.69	~~20~~	~~JB~~ R 19
5.	CYCLOHEXENONE	8.86	5	J
6.	UNKNOWN	14.78	4	J
7.	BISDIMETHYLETHYLPHENOL	17.52	2	J
8.	UNKNOWN	22.28	10	J
9.	UNKNOWN	23.81	3	J
10.	UNKNOWN	24.03	2	J
11.	ADIPATE	24.08	~~4~~	~~JB~~ R 19
12.	ALKANE	25.5	3	J
13.	ALKANE	26.5	3	J
14.	ALKANE	27.6	3	J
15.	UNKNOWN	27.97	20	J
16.	ALKANE	29.03	3	J
17.	ALKANE	30.70	2	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 000110

CLIENT SAMPLE NO.

06-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-005

Sample wt/vol: 30.5 (g/mL) G Lab File ID: J073103

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 17 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	400	U
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	400	U
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	990	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	990	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	23	J
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	990	U
83-32-9	Acenaphthene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000011

CLIENT SAMPLE NO.

06-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: J073103

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 17 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/31/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	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	990	U
534-52-1	4,6-Dinitro-2-methylphenol	990	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	990	U
85-01-8	Phenanthrene	120	J
120-12-7	Anthracene	38	J
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	30	J
206-44-0	Fluoranthene	810	
129-00-0	Pyrene	950	
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	480	
218-01-9	Chrysene	520	
117-81-7	bis(2-Ethylhexyl)phthalate	39	J
117-84-0	Di-n-octyl phthalate	400	U
205-99-2	Benzo(b)fluoranthene	640	
207-08-9	Benzo(k)fluoranthene	470	
50-32-8	Benzo(a)pyrene	380	J
193-39-5	Indeno(1,2,3-cd)pyrene	220	J
53-70-3	Dibenz(a,h)anthracene	96	J
191-24-2	Benzo(g,h,i)perylene	180	J

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 3/90

1F

000112

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: J073103

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 17 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/31/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 9.0

Number TICs found: 24

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLOHEXENOL	5.55	100	J
2.	UNKNOWN	5.81	200	J
3.	ALDOL CONDENSATE	6.00	100	JA
4.	ALDOL CONDENSATE	6.24	100	JA
5.	CYCLOHEXENONE	6.35	200	J
6.	ALDOL CONDENSATE	6.52	400	JA
7.	ALDOL CONDENSATE	8.33	300	JA
8.	ORGANIC ACID	20.11	600	J
9.	PAH	22.14	600	J
10.	PAH	22.33	1000	J
11.	PAH	22.45	600	J
12.	PAH	22.52	1000	J
13.	AROMATIC	23.32	600	J
14.	UNKNOWN	23.56	2000	J
15.	UNKNOWN	23.74	800	J
16.	PAH	24.41	500	J
17.	PAH	24.69	400	J
18.	PAH	25.18	700	J
19.	PAH	25.28	500	J
20.	UNKNOWN	25.59	600	J
21.	UNKNOWN	26.27	1000	J
22.	UNKNOWN	26.80	300	J
23.	PAH	28.47	300	J
24.	ALKANE	30.96	200	J

1B 0000172 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

06-002-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9206L666-006

Sample wt/vol: 990 (g/mL) ML Lab File ID: A071021

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 07/11/92

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 ~~1~~	~~JB~~ U 18
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

000173

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-006

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

Lab File ID: A071021

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/11/92

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 ~~0.9~~	~~JB~~ U 18
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~~ R 14
84-74-2	Di-n-butylphthalate	10 ~~9~~	~~JB~~ U 18
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	10 ~~8~~	~~JB~~ U 18
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.

06-002-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-006

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

Lab File ID: A071021

Level: (low/med) LOW

Date Received: 06/16/92

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

Date Extracted: 06/19/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 07/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 26

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.01	2	JA
2.	UNKNOWN	7.45	3	J
3.	UNKNOWN	8.15	~~9~~	~~JB~~ R 19
4.	UNKNOWN	8.71	~~5~~	~~JB~~ R 19
5.	CYCLOHEXENONE	8.86	4	J
6.	UNKNOWN	14.78	2	J
7.	BISDIMETHYLETHYLPHENOL	17.53	20	J
8.	UNKNOWN	17.87	3	J
9.	ALKANE	17.95	2	J
10.	UNKNOWN	18.53	2	J
11.	UNKNOWN	18.58	2	J
12.	UNKNOWN	19.84	3	J
13.	UNKNOWN	19.90	5	J
14.	UNKNOWN	20.00	4	J
15.	UNKNOWN	20.65	4	J
16.	DIETHYLDIOXOLANE	20.71	3	J
17.	UNKNOWN	22.41	~~4~~	~~JB~~ R 19
18.	UNKNOWN	23.97	3	J
19.	UNKNOWN	24.02	10	J
20.	ADIPATE	24.08	~~4~~	~~JB~~ R 19
21.	UNKNOWN	24.14	4	J
22.	UNKNOWN	24.92	5	J
23.	UNKNOWN	25.22	30	J
24.	UNKNOWN	25.68	3	J
25.	UNKNOWN	26.22	20	J
26.	UNKNOWN	27.98	~~100~~	~~JB~~ R 19

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-007

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

Lab File ID: A070918

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 22 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/09/92

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	430	U
111-44-4	bis(2-Chloroethyl)ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(2-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
59-50-7	4-Chloro-3-methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	U
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	430	U

1C 000207

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-007

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A070918

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 22 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/09/92

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	~~1100~~	~~U~~ R 9
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
86-73-7	Fluorene	430	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	32	J
120-12-7	Anthracene	430	U
86-74-8	Carbazole	4/30 ~~430~~	~~U~~ UJ 8
84-74-2	Di-n-butylphthalate	28	J
206-44-0	Fluoranthene	92	J
129-00-0	Pyrene	65	J
85-68-7	Butylbenzylphthalate	430	U
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)anthracene	36	J
218-01-9	Chrysene	58	J
117-81-7	bis(2-Ethylhexyl)phthalate	76	J 5 7
117-84-0	Di-n-octyl phthalate	430	U
205-99-2	Benzo(b)fluoranthene	52	J
207-08-9	Benzo(k)fluoranthene	50	J
50-32-8	Benzo(a)pyrene	47	J
193-39-5	Indeno(1,2,3-cd)pyrene	430	U
53-70-3	Dibenz(a,h)anthracene	430	U
191-24-2	Benzo(g,h,i)perylene	30	J

(1) - Cannot be separated from Diphenylamine

000208

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

17-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-007

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

Lab File ID: A070918

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 22 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/09/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 7.2

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	TOLUENE	5.78	~~300~~	~~JB~~ 19
2.	ALDOL CONDENSATE	6.61	~~600~~	~~JAB~~ 19
3.	ALKANE	6.79	100	J
4.	ALDOL CONDENSATE	7.07	~~8000~~	~~JAB~~ 19
5.	ALKANE	7.19	~~100~~	~~JB~~
6.	CYCLOALKANE	7.25	~~100~~	~~JB~~
7.	ALKANE	7.30	~~200~~	~~JB~~
8.	UNKNOWN	7.45	~~300~~	~~JB~~
9.	UNKNOWN	8.15	100	J
10.	ALDOL CONDENSATE	8.40	~~100~~	~~JAB~~ 19
11.	CYCLOHEXENONE	8.85	100	J
12.	ALDOL CONDENSATE	8.92	800	JA
13.	ALDOL CONDENSATE	9.65	~~700~~	~~JAB~~ 19
14.	UNKNOWN	10.55	100	J
15.	HEXADECANOIC ACID	21.43	500	J
16.	ALKANE	24.69	100	J
17.	UNKNOWN	25.21	200	J
18.	ALKANE	26.48	200	J
19.	UNKNOWN	27.96	200	J
20.	ALKANE	29.03	700	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 000244

CLIENT SAMPLE NO.

12-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-009

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

Lab File ID: A071006

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 48 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	42	J
111-44-4	bis(2-Chloroethyl)ether	630	U
95-57-8	2-Chlorophenol	630	U
541-73-1	1,3-Dichlorobenzene	630	U
106-46-7	1,4-Dichlorobenzene	630	U
95-50-1	1,2-Dichlorobenzene	630	U
95-48-7	2-Methylphenol	630	U
108-60-1	2,2'-oxybis(2-Chloropropane)	630	U
106-44-5	4-Methylphenol	630	U
621-64-7	N-Nitroso-di-n-propylamine	630	U
67-72-1	Hexachloroethane	630	U
98-95-3	Nitrobenzene	630	U
78-59-1	Isophorone	630	U
88-75-5	2-Nitrophenol	630	U
105-67-9	2,4-Dimethylphenol	630	U
111-91-1	bis(2-Chloroethoxy)methane	630	U
120-83-2	2,4-Dichlorophenol	630	U
120-82-1	1,2,4-Trichlorobenzene	630	U
91-20-3	Naphthalene	630	U
106-47-8	4-Chloroaniline	630	U
87-68-3	Hexachlorobutadiene	630	U
59-50-7	4-Chloro-3-methylphenol	630	U
91-57-6	2-Methylnaphthalene	630	U
77-47-4	Hexachlorocyclopentadiene	630	U
88-06-2	2,4,6-Trichlorophenol	630	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	630	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	630	U
208-96-8	Acenaphthylene	100	J
606-20-2	2,6-Dinitrotoluene	630	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	100	J

1C 000245 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

12-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-009

Sample wt/vol: 30.3 (g/mL) G Lab File ID: A071006

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 48 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	~~1600~~	~~U~~ R 12
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	630	U
121-14-2	2,4-Dinitrotoluene	630	U
84-66-2	Diethylphthalate	630	U
7005-72-3	4-Chlorophenyl-phenylether	630	U
86-73-7	Fluorene	180	J
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	630	U
101-55-3	4-Bromophenyl-phenylether	630	U
118-74-1	Hexachlorobenzene	630	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	1600	
120-12-7	Anthracene	520	J
86-74-8	Carbazole	~~630~~	~~U~~ R 11
84-74-2	Di-n-butylphthalate	630	U
206-44-0	Fluoranthene	3300	
129-00-0	Pyrene	2300	
85-68-7	Butylbenzylphthalate	160	J
91-94-1	3,3'-Dichlorobenzidine	630	U
56-55-3	Benzo(a)anthracene	1100	
218-01-9	Chrysene	1600	
117-81-7	bis(2-Ethylhexyl)phthalate	3700	
117-84-0	Di-n-octyl phthalate	170	J
205-99-2	Benzo(b)fluoranthene	1400	
207-08-9	Benzo(k)fluoranthene	1300	
50-32-8	Benzo(a)pyrene	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	770	
53-70-3	Dibenz(a,h)anthracene	300	J
191-24-2	Benzo(g,h,i)perylene	730	

(1) - Cannot be separated from Diphenylamine

1F 000246

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

12-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-009

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

Lab File ID: A071006

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 48 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 7.0

Number TICs found: 25

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	10.00 min. to 40.00 min.			
2.	UNRESOLVED HYDROCARBONS			
3.	ALDOL CONDENSATE	6.60	~~700~~	~~JAB~~ R 19
4.	ALDOL CONDENSATE	7.05	~~10000~~	~~JAB~~ R 19
5.	ALDOL CONDENSATE	8.91	600	JA
6.	CYCLOALKANE	13.8	700	J
7.	ALKANE	14.05	2000	J
8.	UNKNOWN	15.28	800	J
9.	ALKANE	15.54	4000	J
10.	ALKANE	15.84	1000	J
11.	UNKNOWN	16.04	2000	J
12.	UNKNOWN	16.54	800	J
13.	ALKANE	16.67	6000	J
14.	ALKANE	16.93	900	J
15.	ALKANE	17.16	2000	J
16.	CYCLOALKANE	17.5	1000	J
17.	ALKANE	17.99	1000	J
18.	PAH	18.13	1000	J
19.	ALKANE	18.38	2000	J
20.	ALKANE	18.91	6000	J
21.	ALKANE	19.41	1000	J
22.	ALKANE	19.47	8000	J
23.	ALKANE	19.88	900	J
24.	ALKANE	20.26	900	J
25.	ALKANE	20.35	4000	J
26.	UNKNOWN	20.55	700	J
27.	ALKANE	20.94	1000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000294

CLIENT SAMPLE NO.

15-001-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-010

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

Lab File ID: A070920

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

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	230	J
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(2-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	420	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 000295

CLIENT SAMPLE NO.

15-001-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-010

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

Lab File ID: A070920

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

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~~ R 9
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate		~~B~~ L 20
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
86-74-8	Carbazole	420	~~J~~ UJ 8
84-74-2	Di-n-butylphthalate	56	J
206-44-0	Fluoranthene	33	J
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	420	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)phthalate	34	J 5 7
117-84-0	Di-n-octyl phthalate	420	U
205-99-2	Benzo(b)fluoranthene	420	U
207-08-9	Benzo(k)fluoranthene	420	U
50-32-8	Benzo(a)pyrene	420	U
193-39-5	Indeno(1,2,3-cd)pyrene	420	U
53-70-3	Dibenz(a,h)anthracene	420	U
191-24-2	Benzo(g,h,i)perylene	420	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

000296

CLIENT SAMPLE NO.

15-001-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-010

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

Lab File ID: A070920

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

Number TICs found: 14

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	TOLUENE	5.78	~~200~~	~~JB~~
2.	ALDOL CONDENSATE	6.61	~~400~~	~~JAB~~
3.	ALDOL CONDENSATE	7.06	~~6000~~	~~JAB~~
4.	ALKANE	7.30	~~100~~	~~JB~~
5.	UNKNOWN	7.45	~~200~~	~~JB~~
6.	ALDOL CONDENSATE	8.64	200	JA
7.	TERPENE	8.82	800	J
8.	ALDOL CONDENSATE	8.92	500	JA
9.	HEXADECANOIC ACID	21.43	400	J
10.	UNKNOWN	27.98	300	J
11.	UNKNOWN	28.72	500	J
12.	ALKANE	29.04	1000	J
13.	ALKANE	32.75	1000	J
14.	ALKANE	36.9	400	J

1B 000320

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-D001DL

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-010 DL

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

Lab File ID: A071009

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 10.0

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	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	

R 20

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000321

CLIENT SAMPLE NO.

15-001-D001DL

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-010 DL

Sample wt/vol: 5.00 (g/mL) G Lab File ID: A071009

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

Injection Volume: 2.0(uL) Dilution Factor: 10.0

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	NA	
100-02-7	4-Nitrophenol	NA	
132-64-9	Dibenzofuran	NA	
121-14-2	2,4-Dinitrotoluene	NA	
84-66-2	Diethylphthalate	23000	
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	NA	
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 0000328 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

15-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-011

Sample wt/vol: 30.4 (g/mL) G Lab File ID: A071007

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 23 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

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	430	U
111-44-4	bis(2-Chloroethyl)ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(2-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
59-50-7	4-Chloro-3-methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	U
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	430	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

0000327

CLIENT SAMPLE NO.

15-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-011

Sample wt/vol: 30.4 (g/mL) G

Lab File ID: A071007

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 23 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

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	~~1100~~	~~U~~ R 12
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
86-73-7	Fluorene	430	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	58	J
120-12-7	Anthracene	36	J
86-74-8	Carbazole	~~430~~	~~U~~ R 11
84-74-2	Di-n-butylphthalate	31	J
206-44-0	Fluoranthene	250	J
129-00-0	Pyrene	180	J
85-68-7	Butylbenzylphthalate	430	U
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)anthracene	74	J
218-01-9	Chrysene	160	J
117-81-7	bis(2-Ethylhexyl)phthalate	51	J
117-84-0	Di-n-octyl phthalate	430	U
205-99-2	Benzo(b)fluoranthene	140	J
207-08-9	Benzo(k)fluoranthene	130	J
50-32-8	Benzo(a)pyrene	63	J
193-39-5	Indeno(1,2,3-cd)pyrene	61	J
53-70-3	Dibenz(a,h)anthracene	430	U
191-24-2	Benzo(g,h,i)perylene	39	J

(1) - Cannot be separated from Diphenylamine

1F 000328 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

15-002-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-011

Sample wt/vol: 30.4 (g/mL) G Lab File ID: A071007

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 23 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

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.	TOLUENE	5.78	~~200~~	~~JB~~ R 19
2.	ALDOL CONDENSATE	6.62	~~400~~	~~JAB~~
3.	ALDOL CONDENSATE	7.08	~~7000~~	~~JAB~~
4.	ALKANE	7.19	~~90~~	~~JB~~
5.	ALKANE	7.25	~~90~~	~~JB~~
6.	ALKANE	7.30	~~100~~	~~JB~~
7.	UNKNOWN	7.45	~~200~~	~~JB~~
8.	UNKNOWN	8.16	200	J
9.	ALDOL CONDENSATE	8.41	~~200~~	~~JAB~~ R 19
10.	ALDOL CONDENSATE	8.64	100	JA
11.	ALDOL CONDENSATE	8.92	400	JA
12.	ALDOL CONDENSATE	9.10	100	JA
13.	ALDOL CONDENSATE	9.65	~~600~~	~~JAB~~ R 19
14.	ALDOL CONDENSATE	10.09	90	JA
15.	HEXADECANOIC ACID	21.43	500	J
16.	UNKNOWN	21.71	100	J
17.	ALKANE	24.68	100	J
18.	ALKANE	25.01	300	J
19.	ALKANE	26.49	200	J
20.	UNKNOWN	27.97	500	J
21.	ALKANE	29.03	900	J
22.	ALKANE	32.72	1000	J
23.	ALKANE	36.88	400	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-012

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A070922

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

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	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(2-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
91-57-6	2-Methylnaphthalene	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	420	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET 000369

CLIENT SAMPLE NO.

15-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-012

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A070922

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

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	~~1000~~	~~U~~ R 9
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	420	U
120-12-7	Anthracene	420	U
86-74-8	Carbazole	420	~~U~~ UJ 8
84-74-2	Di-n-butylphthalate	34	J
206-44-0	Fluoranthene	41	J
129-00-0	Pyrene	23	J
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	420	U
218-01-9	Chrysene	28	J
117-81-7	bis(2-Ethylhexyl)phthalate	290	J J 7
117-84-0	Di-n-octyl phthalate	420	U
205-99-2	Benzo(b)fluoranthene	28	J
207-08-9	Benzo(k)fluoranthene	24	J
50-32-8	Benzo(a)pyrene	420	U
193-39-5	Indeno(1,2,3-cd)pyrene	420	U
53-70-3	Dibenz(a,h)anthracene	420	U
191-24-2	Benzo(g,h,i)perylene	420	U

(1) - Cannot be separated from Diphenylamine

1F 000370

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-012

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A070922

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 20 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.6

Number TICs found: 25 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.61	~~300~~	~~JAB~~ R 19
2.	ALDOL CONDENSATE	7.05	~~5000~~	~~JAB~~
3.	ALDOL CONDENSATE	7.31	~~100~~	~~JAB~~
4.	ALDOL CONDENSATE	8.93	500	JA
5.	ALDOL CONDENSATE	9.65	~~400~~	~~JAB~~ R 18
6.	HEXADECANOIC ACID	21.43	400	J
7.	UNKNOWN	23.97	200	J
8.	UNKNOWN	24.69	600	J
9.	ALKANE	25.52	200	J
10.	ALKANE	26.49	1000	J
11.	ALKANE	27.64	300	J
12.	UNKNOWN	27.97	200	J
13.	UNKNOWN	28.38	400	J
14.	ALKANE	29.07	7000	J
15.	UNKNOWN	29.57	200	J
16.	ALKANE	30.71	500	J
17.	UNKNOWN	31.81	700	J
18.	ALKANE	32.77	6000	J
19.	UNKNOWN	33.54	400	J
20.	UNKNOWN	34.09	200	J
21.	ALKANE	34.98	300	J
22.	UNKNOWN	35.33	200	J
23.	UNKNOWN	36.09	600	J
24.	ALKANE	36.91	2000	J
25.	UNKNOWN	37.71	400	J

1B 000407

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-004-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-013

Sample wt/vol: 30.3 (g/mL) G Lab File ID: A071008

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 19 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

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	410	U
111-44-4	bis(2-Chloroethyl)ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(2-Chloropropane)	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	410	U

1C 000208 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

15-004-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT Lab Sample ID: 9206L666-013

Sample wt/vol: 30.3 (g/mL) G Lab File ID: A071008

Level: (low/med) LOW Date Received: 06/16/92

% Moisture: 19 decanted: (Y/N)__ Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/10/92

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	~~1000~~	~~U~~ R 12
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
86-73-7	Fluorene	410	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	48	J
120-12-7	Anthracene	36	J
86-74-8	Carbazole	24	J J 11
84-74-2	Di-n-butylphthalate	32	J
206-44-0	Fluoranthene	140	J
129-00-0	Pyrene	110	J
85-68-7	Butylbenzylphthalate	21	J
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	57	J
218-01-9	Chrysene	120	J
117-81-7	bis(2-Ethylhexyl)phthalate	63	J
117-84-0	Di-n-octyl phthalate	410	U
205-99-2	Benzo(b)fluoranthene	120	J
207-08-9	Benzo(k)fluoranthene	100	J
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	31	J
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	38	J

(1) - Cannot be separated from Diphenylamine

1F

000409

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-004-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-013

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

Lab File ID: A071008

Level: (low/med) LOW

Date Received: 06/16/92

% Moisture: 19 decanted: (Y/N)__

Date Extracted: 06/22/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 07/10/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.6

Number TICs found: 26

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	TOLUENE	5.76	~~100~~	~~JB~~ K 19
2.	ALDOL CONDENSATE	6.60	~~400~~	~~JAB~~
3.	ALDOL CONDENSATE	7.06	~~6000~~	~~JAB~~
4.	ALKANE	7.29	~~100~~	~~JB~~
5.	UNKNOWN	7.45	~~200~~	~~JB~~
6.	UNKNOWN	8.16	200	J
7.	ALDOL CONDENSATE	8.41	~~100~~	~~JAB~~ K 19
8.	ALDOL CONDENSATE	8.63	200	JA
9.	CYCLOHEXENONE	8.85	100	J
10.	ALDOL CONDENSATE	8.92	400	JA
11.	ALDOL CONDENSATE	9.65	~~400~~	~~JAB~~ K 19
12.	HEXADECANOIC ACID	21.43	300	J
13.	UNKNOWN	23.97	100	J
14.	UNKNOWN	24.70	600	J
15.	ALKANE	26.49	400	J
16.	ALKANE	27.63	100	J
17.	UNKNOWN	27.97	300	J
18.	UNKNOWN	28.37	100	J
19.	ALKANE	29.04	3000	J
20.	ALKANE	30.71	300	J
21.	UNKNOWN	31.80	400	J
22.	ALKANE	32.73	3000	J
23.	UNKNOWN	33.52	200	J
24.	UNKNOWN	36.06	200	J
25.	ALKANE	36.88	800	J
26.	UNKNOWN	37.68	300	J

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92061666 LAB: RFW - Lionville

SITE: Coltsneck

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

2.1 Is the Narrative or Cover Letter Present?	[✓]	___	___
2.2 Are Case Number and/or SAS number contained in the Narrative or Cover letter?	[✓]	___	___

3.0 Data Validation Checklist

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

Does this package contain:

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

Action: Complete corresponding parts of checklist.

	YES	NO	N/A

PART 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

DJH 08-18-92

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 OR 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, for the affected fraction only (i.e. base-neutral or acid compounds):

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	9 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	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

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

DJH 08-18-92

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? [✓] ✓ DJH 08-18-92 ___

	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.

	YES	NO	N/A
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.

	YES	NO	N/A
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:

	YES	NO	N/A
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.

	YES	NO	N/A
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? ___ [✓] ___

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

DJH 08-18-92

(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. 92061666 SDG No._____ LABORATORY RFW SITE Cottsneck

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. Hess Date: 08/18/1992

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

SB1K A070603 07/06/92

TICS

5.86	7.40
6.72	7.57
7.19	8.51
7.29	9.76
7.36	

SB1KLE0504-BS

TICS

17-003-D001 1,2,4,5,6,7,8,10,13
15-001-D001 1,2,3,4,5
15-003-D001 1,2,3,5
12-002-D001 3,4
15-002-D001 1,2,3,4,5,6,7,9,13
15-004-D001 1,2,3,4,5,7,11

15-001-D001DL
06-002-D001MS
06-002-D001MSD
06-002-D001

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

2. Blank Contamination: (Continued)

SBIK A071003 07/10/92

			TICs
- Phenol	2	10	6.24
Diethylphthalate	1	10	8.03 8.16
Di-n-butylphthalate	1	10	8.71 22.41
bis(2-ethyl)hexyl) phthalate	1	10	24.1 27.98

SBIKLE0888 BS
SBIKLE0888 BSD

01-002-M001 #9
01-002-M201 #3,4,5,6
06-003-M001 #3,4,11,15
06-002-D201 #3,4,17,20,26

01-002-M001	Di-n-butylphthalate.	2	CRQL
	bis(2-ethylhexyl)phthalate.	10	U
01-002-M201	Phenol	0.8	CRQL
	Di-n-butylphthalate.	2	CRQL
	bis(2-ethylhexyl)phthalate	9	CRQL
06-003-M001	Phenol	1	CRQL
	di-ethylphthalate	0.9	CRQL
	Di-n-butyl phthalate.	2	↓
	bis(2ethylhexyl) phthalate.	7	↓
06-002-D201	Phenol	1	CRQL
	Diethylphthalate	0.9	CRQL
	Di-n-butylphthalate.	9	CRQL
	bis(2-ethylhexyl)phthalate.	8	CRQL

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 Cal. 07/02/92 OK

Continuing Cal. A070602 OK

Initial Cal. 07/08/92 OK

Continuing Cal. A070910

17-003-D001 2,4-dinitrophenol 0.045
15-001-D001
15-003-D001

Continuing Cal A071002

SBIKLE0888 2,4-dinitrophenol 0.043
SBIKLE088-BS
SBIKLE088-BSD
12-002-D001
15-002-D001
15-004-D001
15-001-D001DL

Continuing Cal A071011 OK

Initial Cal. 07/13/92 OK

Continuing A071502 K

Initial Cal. 07/24/92 OK

Continuing Cal 5073102 OK

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 Cal. 7/02/92

no samples

3-nitroaniline 76.0
carbazole 51.3

Continuing A070602

SBIKLE0904
SBIKLE0904-BS

2-nitrophenol -28.8
hexachlorocyclopentadiene -28.7
3-nitroaniline 46.3
4-nitroaniline -59.0
carbazole -98.5

Initial Cal 07/08/92

no samples

carbazole 32.4

Continuing A070910

12-003-D001
12-001-D001
15-003-D001

2-methylphenol -39.1
2,4-dinitrophenol 28.6
4-nitrophenol 29.7
Pentachlorophenol 28.8
carbazole -62.6
butylbenzylphthalate -28.0
bis(2-ethylhexyl)phthalate -24.8

Continuing A071002

SBIKLE088
SBIKLE088-BS
SBIKLE088-BSD
12-002-D001
15-002-D002
15-004-D001
15-001-D001DL

2,4-dinitrophenol 31.7
4-nitroaniline -45.3
carbazole -124

Continuing A071011

01-002-A001
01-002-A201
06-003-A001
06-002-D201

2-methylphenol -30.7
3-nitroaniline -27.3
4-nitroaniline -41.2
4,6-Dinitro-2-methylphenol -30.
carbazole -141
Dibenzo(a,h)anthracene -31.

Initial Cal. 07/13/92

no samples

4-nitroaniline
carbazole

Continuing A071502

06-002-D001MS
06-002-D001MSD

4-chloroaniline 33.3
carbazole -131
2,4,6-tribromophenol -34.9

S. Calibration (Continued)

Initial Cal 07/24/92

no samples OK

Continuing Cal J073102

060002-D001 2,4-Dinitrophenol 37.6
pentachlorophenol 40.0

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:

01-002-M001 Tribromophenol 130% 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:

06-002-D001MS	Phenol	121
	2-chlorophenol	110
	n-nitroso-di-n-propylamine	164
	4-Chloro-3-methylphenol	116
	4-nitrophenol	138
	2,4-dinitrotoluene	130
	pentachlorophenol	115
06-002-D001MSD	1,2,4-Trichlorobenzene	37
	pyrene	32

and all RPDs were out high.

DATA ASSESSMENT

10. OTHER QC DATA OUT OF SPECIFICATION:

SBIKLE088-BS 4-nitrophenol 111
2,4-dinitro toluene 105
pentachlorophenol 113

SBIKLE0504-BS 4-nitrophenol 122
2,4-dinitrotoluene 117

SBIKLE088-BSD 4-chloro-3-methylphenol 101
4-nitrophenol 119
2,4-dinitrotoluene 12[illegible]
pentachlorophenol 141
pyrene 134

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:

15-001-D001DL

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

Data Validation Report

Pesticide/Aroclors

August 24, 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 16, 1992 at the **NWS Earle - ColtsNeck, NJ** site. There were four (4) water sample with no MS/MSD and four (4) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratory - Lionville in this analytical batch, **RFW Lot# 9206L666.**

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.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

SAMPLES AND FRACTIONS REVIEWED

Roy F. Weston, Inc.

Sample Identifications		Analytical Fraction	
FIELD ID	**LABORATORY ID**	**Matrix**	**PEST**
01-002-M001	9206L666-001	WATER	X
01-002-M201	9206L666-002	WATER	X
06-003-M001	9206L666-003	WATER	X
06-002-D001	9206L666-005	SOIL	X
06-002-D201	9206L666-006	WATER	X
17-003-D001	9206L666-007	SOIL	X
17-003-D001DL	9206L666-007DL	SOIL	X
12-002-D001	9206L666-009	SOIL	X
06-002-D001MS	9206L666-005MS	SOIL	X
06-002-D001D	9206L666-005D	SOIL	X

MS - Matrix Spike D - 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.

Four (4) water samples with no MS/MSD and four (4) soil samples with one (1) MS/MSD were included in this analytical data package, **RFW Lot # 9206L666**. 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

No continuing calibration standards associated with the reported samples exceeded the 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

Although DCB recoveries for the water samples were consistently below the QC limit, no samples, soil or water, exhibited low recoveries for both surrogates. No qualifications are required under EPA Region II guidelines.

Matrix Spike/Matrix Spike Duplicate

All % Recoveries and RPDs for both the soil MS/MSD and the water BS/BSD were within QC limits. No qualifications were required.

Analyte Identification/Quantitation

Specific Finding

1. An unreported small positive result for AR 1260 was identified in sample 06-002-D001 and quantitated by the reviewer at 150 ug/Kg, showing a 26% difference in the quantitative results between the two columns. This result is qualified as estimated "J" due to the %D and the concentration is below the reported CRQL.

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%).

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
06-002-D001	AR 1260	U	+J	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

CLIENT SAMPLE NO.

01-002-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-001

Sample wt/vol: 980 (g/mL) ML

Lab File ID: 07109235.45

% Moisture: decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/18/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 07/14/92

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	0.051	U
319-85-7	Beta-BHC	0.051	U
319-86-8	Delta-BHC	0.051	U
58-89-9	gamma-BHC (Lindane)	0.051	U
76-44-8	Heptachlor	0.051	U
309-00-2	Aldrin	0.051	U
1024-57-3	Heptachlor epoxide	0.051	U
959-98-8	Endosulfan I	0.051	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.51	U
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.051	U
5103-74-2	gamma-Chlordane	0.051	U
8001-35-2	Toxaphene	5.1	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	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

B.M. 07/23/92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

01-002-M201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-002

Sample wt/vol: 870 (g/mL) ML

Lab File ID: 07109235.46

% Moisture: decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/18/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 07/14/92

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	0.058	U
319-85-7	Beta-BHC	0.058	U
319-86-8	Delta-BHC	0.058	U
58-89-9	gamma-BHC (Lindane)	0.058	U
76-44-8	Heptachlor	0.034	J
309-00-2	Aldrin	0.058	U
1024-57-3	Heptachlor epoxide	0.058	U
959-98-8	Endosulfan I	0.058	U
60-57-1	Dieldrin	0.12	U
72-55-9	4,4'-DDE	0.12	U
72-20-8	Endrin	0.12	U
33213-65-9	Endosulfan II	0.12	U
72-54-8	4,4'-DDD	0.12	U
1031-07-8	Endosulfan sulfate	0.12	U
50-29-3	4,4'-DDT	0.12	U
72-43-5	Methoxychlor	0.58	U
53494-70-5	Endrin ketone	0.12	U
7421934	Endrin aldehyde	0.12	U
5103-71-9	alpha-Chlordane	0.058	U
5103-74-2	gamma-Chlordane	0.058	U
8001-35-2	Toxaphene	5.8	U
12674-11-2	Aroclor-1016	1.2	U
11104-28-2	Aroclor-1221	2.3	U
11141-16-5	Aroclor-1232	1.2	U
53469-21-9	Aroclor-1242	1.2	U
12672-29-6	Aroclor-1248	1.2	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

B.M. 07/23/92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-M001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-003

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

Lab File ID: 07109235.47

% Moisture: decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/18/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 07/14/92

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

B.M. 07/23/92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-D001

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

lient: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005

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

Lab File ID: 07159235.24

% Moisture: 17. decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/19/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 07/16/92

Injection Volume: 0.5(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 9.0

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	20	U	
319-85-7	Beta-BHC	20	U	
319-86-8	Delta-BHC	20	U	
58-89-9	gamma-BHC (Lindane)	20	U	
76-44-8	Heptachlor	20	U	
309-00-2	Aldrin	20	U	
1024-57-3	Heptachlor epoxide	20	U	
959-98-8	Endosulfan I	20	U	
60-57-1	Dieldrin	40	U	
72-55-9	4,4'-DDE	18	J	
72-20-8	Endrin	40	U	
33213-65-9	Endosulfan II	2.4	~~JP~~	J 2
72-54-8	4,4'-DDD	21	J	
1031-07-8	Endosulfan sulfate	40	U	
50-29-3	4,4'-DDT	95		
72-43-5	Methoxychlor	200	U	
53494-70-5	Endrin ketone	40	U	
7421934	Endrin aldehyde	40	U	
5103-71-9	alpha-Chlordane	14 ~~7.0~~	~~JP~~	UJ 4
5103-74-2	gamma-Chlordane	4.8 ~~2.4~~	~~JP~~	UJ 4
8001-35-2	Toxaphene	2000	U	
12674-11-2	Aroclor-1016	400	U	
11104-28-2	Aroclor-1221	800	U	
11141-16-5	Aroclor-1232	400	U	
53469-21-9	Aroclor-1242	400	U	
12672-29-6	Aroclor-1248	400	U	
11097-69-1	Aroclor-1254	400	U	
11096-82-5	Aroclor-1260	150 ~~400~~	~~U~~ J	1, 2

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9206L666-006

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

Lab File ID: 07109235.48

% Moisture: decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/18/92

Concentrated Extract Volume: 10000.00 (uL)

Date Analyzed: 07/14/92

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	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	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

B.M. 07/23/92

FORM 1 PEST 03/90

1D 000057

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-007

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

Lab File ID: 07109235.49

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

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/19/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 07/14/92

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	2.1	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	4.3	U	
72-55-9	4,4'-DDE	6.4		
72-20-8	Endrin	4.3	U	
33213-65-9	Endosulfan II	4.3	U	
72-54-8	4,4'-DDD	4.3	U	
1031-07-8	Endosulfan sulfate	4.3	U	
50-29-3	4,4'-DDT	4.3	~~P~~	J 2
72-43-5	Methoxychlor	21	U	
53494-70-5	Endrin ketone	4.3	U	
7421934	Endrin aldehyde	210 ~~78~~	~~P~~	UJ 4 use DL result
5103-71-9	alpha-Chlordane	23	~~P~~	NJ 3
5103-74-2	gamma-Chlordane	23		
8001-35-2	Toxaphene	210	U	
12674-11-2	Aroclor-1016	43	U	
11104-28-2	Aroclor-1221	86	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	43	U	

FORM 1 PEST 03/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17-003-D001DL

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-007 DL

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

Lab File ID: 07169235.18

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

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/19/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 07/17/92

Injection Volume: 0.5(uL)

Dilution Factor: 5.00

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	11	NA
319-85-7	Beta-BHC	11	NA
319-86-8	Delta-BHC	11	NA
58-89-9	gamma-BHC (Lindane)	11	NA
76-44-8	Heptachlor	11	NA
309-00-2	Aldrin	11	NA
1024-57-3	Heptachlor epoxide	11	NA
959-98-8	Endosulfan I	11	NA
60-57-1	Dieldrin	21	NA
72-55-9	4,4'-DDE	21	NA
72-20-8	Endrin	21	NA
33213-65-9	Endosulfan II	21	NA
72-54-8	4,4'-DDD	21	NA
1031-07-8	Endosulfan sulfate	21	NA
50-29-3	4,4'-DDT	21	NA
72-43-5	Methoxychlor	110	NA
53494-70-5	Endrin ketone	21	NA
7421934	Endrin aldehyde	21	U
5103-71-9	alpha-Chlordane	11	NA
5103-74-2	gamma-Chlordane	11	NA
8001-35-2	Toxaphene	1100	NA
12674-11-2	Aroclor-1016	210	NA
11104-28-2	Aroclor-1221	430	NA
11141-16-5	Aroclor-1232	210	NA
53469-21-9	Aroclor-1242	210	NA
12672-29-6	Aroclor-1248	210	NA
11097-69-1	Aroclor-1254	210	NA
11096-82-5	Aroclor-1260	210	NA

B.M. 07/23/92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

12-002-D001

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

lient: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-009

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

Lab File ID: 07159235.25

% Moisture: 48. decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/19/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 07/16/92

Injection Volume: 0.5(uL)

Dilution Factor: 10.0

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

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q		
319-84-6	Alpha-BHC	32	U		
319-85-7	Beta-BHC	32	U		
319-86-8	Delta-BHC	32	U		
58-89-9	gamma-BHC (Lindane)	32	U		
76-44-8	Heptachlor	32	U		
309-00-2	Aldrin	32	U		
1024-57-3	Heptachlor epoxide	32	U		
959-98-8	Endosulfan I	32	U		
60-57-1	Dieldrin	54 ~~11~~	~~JP~~	UJ	4
72-55-9	4,4'-DDE	57	J		
72-20-8	Endrin	64	U		
33213-65-9	Endosulfan II	64	U		
72-54-8	4,4'-DDD	91			
1031-07-8	Endosulfan sulfate	64	U		
50-29-3	4,4'-DDT	33	~~JP~~	NJ	3
72-43-5	Methoxychlor	320	U		
53494-70-5	Endrin ketone	64	U		
7421934	Endrin aldehyde	64	U		
5103-71-9	alpha-Chlordane	87	~~P~~	NJ	3
5103-74-2	gamma-Chlordane	90			
8001-35-2	Toxaphene	3200	U		
12674-11-2	Aroclor-1016	640	U		
11104-28-2	Aroclor-1221	1300	U		
11141-16-5	Aroclor-1232	640	U		
53469-21-9	Aroclor-1242	640	U		
12672-29-6	Aroclor-1248	640	U		
11097-69-1	Aroclor-1254	640	U		
11096-82-5	Aroclor-1260	640	U		

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-D001MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005 MS

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

Lab File ID: 07159235.19

% Moisture: 17. decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/19/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 07/16/92

Injection Volume: 0.5(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 9.0

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	20	U	
319-85-7	Beta-BHC	20	U	
319-86-8	Delta-BHC	20	U	
58-89-9	gamma-BHC (Lindane)	74.0	%	
76-44-8	Heptachlor	84.0	%	
309-00-2	Aldrin	70.0	%	
1024-57-3	Heptachlor epoxide	20	U	
959-98-8	Endosulfan I	20	U	
60-57-1	Dieldrin	56.0	%	
72-55-9	4,4'-DDE	22	J	
72-20-8	Endrin	53.0	~~%~~	NJ 3
33213-65-9	Endosulfan II	2.8	~~JP~~	NJ 3
72-54-8	4,4'-DDD	25	J	
1031-07-8	Endosulfan sulfate	40	U	
50-29-3	4,4'-DDT	129	%	
72-43-5	Methoxychlor	200	U	
53494-70-5	Endrin ketone	40	U	
7421934	Endrin aldehyde	40	U	
5103-71-9	alpha-Chlordane	16 ~~8.0~~	~~JP~~	UJ 4
5103-74-2	gamma-Chlordane	5.2	~~JP~~	J 2
8001-35-2	Toxaphene	2000	U	
12674-11-2	Aroclor-1016	400	U	
11104-28-2	Aroclor-1221	800	U	
11141-16-5	Aroclor-1232	400	U	
53469-21-9	Aroclor-1242	400	U	
12672-29-6	Aroclor-1248	400	U	
11097-69-1	Aroclor-1254	400	U	
11096-82-5	Aroclor-1260	400	U	

%: SPIKE COMPOUND

FORM 1 PEST

03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-D001MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SEDIMENT

Lab Sample ID: 9206L666-005 MSD

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

Lab File ID: 07159235.20

% Moisture: 17. decanted: (Y/N)_

Date Received: 06/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 06/19/92

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 07/16/92

Injection Volume: 0.5(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 9.0

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	20	U
319-85-7	Beta-BHC	20	U
319-86-8	Delta-BHC	20	U
58-89-9	gamma-BHC (Lindane)	70.0	%
76-44-8	Heptachlor	80.0	%
309-00-2	Aldrin	62.0	%
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	52.0	%
72-55-9	4,4'-DDE	20	J
72-20-8	Endrin	50.0	~~%~~
33213-65-9	Endosulfan II	40	U
72-54-8	4,4'-DDD	37	J
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	93.0	%
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	40	U
7421934	Endrin aldehyde	40	U
5103-71-9	alpha-Chlordane	7.6	~~JP~~
5103-74-2	gamma-Chlordane	5.2	J
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	400	U
11104-28-2	Aroclor-1221	800	U
11141-16-5	Aroclor-1232	400	U
53469-21-9	Aroclor-1242	400	U
12672-29-6	Aroclor-1248	400	U
11097-69-1	Aroclor-1254	400	U
11096-82-5	Aroclor-1260	400	U

NJ DDE 7/27/92 3

NJ 3

%: SPIKE COMPOUND

FORM 1 PEST

03/90

STANDARD OPERATING PROCEDURE

Date: January 1992
Revision: 8

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES
CASE NUMBER: 92061666 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)

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

	YES	NO	N/A
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?

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

DCB for all waters

2E

WATER PESTICIDE SURROGATE RECOVERY

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

Case No.: NAVAL WEAPONS/COLTSNECK RFW Lot No.: 9206L666

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	01-002-M001	65	85	40*	50*			2
02	01-002-M201	90	100	50*	45*			2
03	06-003-M001	85	95	35*	35*			2
04	06-002-D201	95	100	25*	25*			2
05	PBLKLE0883-MB1	85	95	45*	45*			2
06	PBLKLE0883-MB1 BS	85	90	55*	55*			2
07	PBLKLE0883-MB1 BSD	85	90	45*	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.: 9206L666

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	06-002-D001	88	80	110	90			0
02	06-002-D001MS	85	80	118	85			0
03	06-002-D001MSD	82	78	105	92			0
04	17-003-D001	75	75	80	82			0
05	17-003-D001DL	78	80	100	95			0
06	12-002-D001	75	75	120	62			0
07	PBLKLE0890-MB1	78	72	80	85			0
08	PBLKLE0890-MB1 BS	92	88	90	92			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".

DCB low for all waters → No qual.

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.

Both columns Both initial cals.

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 Blank Spike/BS Dup [✓] ___ ___

b. Soil Sample 06-002-D001 [✓] ___ ___

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?

BS/BSD

Water	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	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. ___ [✓] ___

6.2 Do any field/rinse blanks have positive PEST/PCB results? ___ [✓] ___

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet) No positive hits in any of the waters

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? [✓] ___ ___ apparently not

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.	[✓]	___	___

Both columns
Both initial cal's

	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).

	YES	NO	N/A
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).

gamma-BHC on DB608
INDBM13-90
22:56 7/13/92
= 25.0%
OK

8.0 Analytical Sequence Check (Form VIII-PEST)

	YES	NO	N/A
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.

	YES	NO	N/A
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).

Sample 06-002-D001
AR 1260
150 µg/kg
"J" for %D & below CRQL

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.

Sample 06-002-D001

DB608

Pk #	RT	PK Ht	CF	Conc. (ng/µL)
1	26.212	8287	120920	0.0685
2	25.817	1007	61800	0.01629
3	24.036	727	56860	0.012786
4	22.743	1253	115000	0.010896
5	22.469	1399	114900	0.012176

$\bar{x}$ = 0.02414 194 µg/kg

DB1701

PK #	RT	PK.Ht.	CF	Conc. (ng/µL)
1	27.301	1050	75840	0.01384
2	26.198	509	40220	0.01266
3	23.730	2461	72620	0.03389
4	22.930	767	63380	0.01210
5	22.406	777	33440	0.02323

$\bar{x}$ = 0.01914 154 µg/kg

26% D

	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?	[ ]	___	✓

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

None identified

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

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

Case No. 92061666 SDG No. 01-002-M001 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: [signature] Date: 8/24/1992

Verified By: [signature] Date: 8/25/1992

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

None

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

None

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:

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:

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:

~~None~~ CDS 8/24/92

Numerous hits in soils & sediments

— see Form I's for qualifications

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):

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:

DATA ASSESSMENT

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT (continued):

Good

— lab missed minor AR1260 hit in sample 06-002-D001 @ ~ 150 µg/Kg "J" (P)

see attached calculation page.

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

August 24, 1992

TO: John Williams Jr.
Project Manager
Roy F. Weston Inc.

FROM: Paul Humburg
Project Manager
Heartland ESI.

SUBJECT: Submittal of Data Validation results for Naval Weapons Station, New Jersey. Five (5) water samples and one (1) Matrix Spike and Duplicate pair and three (3) soil samples and no (0) Matrix Spike and Duplicate pair were analyzed by the Roy F. Weston Lionville Laboratory.

Navy No.	RFW No.
01-002	920666601
01-201	920666602
06-003	920666603
12-001	920666604
06-002	920666605
06-201	920666606
17-003	920666607
12-002	920666609

Heartland ESI has reviewed the data for the samples listed above TAL Metals using Region II Data Validation Protocol, January 1992 revision. Analytical data in this report were screened to determine usability of the results and also to determine contractual compliance relative to the requirements and deliverables of the Region II Protocol. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results.

Inorganic fraction was reviewed as follows:

Tal Metals reviewed by Paul B. Humburg

Please refer to the Annotated From 1s and the detailed data validation report for additional information. Specific comments are provided on the following pages.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

DATA ASSESSMENT NARRATIVE
Metals

General

The inorganic 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, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations and reported results are reviewed utilizing the raw instrument data. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from **Naval Weapons Station,N.J., SDG# 9206666**, the analysis of five (5) field water samples and one (1) matrix spike and duplicate pair and three (3) field soil samples and no (0) matrix spike and duplicate pair. Overall, the inorganic data quality was fair. The USEPA CLP analytical protocol was followed as required. The soil QC data was found in SDG 708.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Region II Protocol.

Calibration

1. The CRDL Standard for Lead was below the lower control limit. All positive and non-detect results within the affected range are qualified as estimated, "J" or "UJ".

2. The CRDL Standard for Arsenic was above the upper control limit. All positive results within the affected range are qualified as estimated, "J".

Preparation and Field Blanks

No deficiencies in this section.

Interferences

No significant interferences were observed.

Spike Recovery

3. The Matrix Spike recovery for waters for Arsenic was below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

   The Matrix Spike recoveries for soils for Beryllium, Selenium, Silver and Cyanide were below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

4. The Matrix Spike recovery for waters for Aluminum was above 150%. All positive results are rejected.

Duplicate

5. The Duplicate Analyses for Calcium and Magnesium for soils was outside the control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

LCS

No deficiencies in this section.

Serial Dilution

6. The Serial dilution for soil Zinc was outside the control limit. All positive results are qualified as estimated,"J" if the values are greater than 10 times the CRDL.

   The Serial Dilutions for waters for Aluminum, Manganese, Sodium and Zinc were outside the control limits. All positive results are qualified as estimated, "J" if the values are greater than 10 times the CRDL.

MSA

7. The following analytes exhibited low recovery during the GFAA spiking procedures. All data is qualified as estimated, "J" or "UJ".

Analyte	Samples
Arsenic	12-001.
Lead	01-002, 06-003 and 06-201.
Selenium	06-003, 12-001, 06-002, 17-003 and 12-002.
Thallium	06-003, 12-001 and 17-003.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE	DL	QL	SPECIFIC FINDING
All samples	Pb	+/U	J/UJ	1
All samples	As	+	J	2
All soil samples All water samples	Be, Se, Ag and Cn. As	+/U	J/UJ	3
All water samples	Al	+	R	4
All soil samples	Ca and Mg.	+/U	J/UJ	5
All soil samples All water samples	Zn Al, Mn, Na and Zn.	+	J	6
12-001. 01-002, 06-003 and 06-201. 06-003, 12-001, 06-002, 17-003 and 12-002. 06-003, 12-001 and 17-003.	As Pb Se Tl	+/U	J/UJ	7

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

01-002

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): WATER Lab Sample ID: 920666601

Level (low/med): LOW Date Received: 6/16/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	~~2310.00~~		~~N*E~~	~~P~~	4
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U	N	F	UJ3
7440-39-3	Barium	39.10	B		P	
7440-41-7	Beryllium	1.00	B		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	2500.00	B		P	
7440-47-3	Chromium	33.10			P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	8.10	B		P	
7439-89-6	Iron	5030.00		*	P	
7439-92-1	Lead	2.00	B	W	F	J1,7
7439-95-4	Magnesium	1540.00	B		P	
7439-96-5	Manganese	20.40			P	J6
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U		P	
7440-09-7	Potassium	4830.00	B		P	
7782-49-2	Selenium	2.00	U		F	
7440-22-4	Silver	8.00	U		P	
7440-23-5	Sodium	2920.00	B		P	J6
7440-28-0	Thallium	2.00	U		F	
7440-62-2	Vanadium	9.90	B		P	
7440-66-6	Zinc	192.00		*	P	J6
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

01-201

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): WATER Lab Sample ID: 920666602

Level (low/med): LOW Date Received: 6/16/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	46.00	U	*NE	P	
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U	N	F	UJ 3
7440-39-3	Barium	7.00	U		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	62.00	U		P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	7.00	U		P	
7439-89-6	Iron	30.00	U	*	P	
7439-92-1	Lead	2.00	U		F	UJ 1
7439-95-4	Magnesium	69.00	U		P	
7439-96-5	Manganese	2.00	U		P	
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U		P	
7440-09-7	Potassium	896.00	U		P	
7782-49-2	Selenium	2.00	U		F	
7440-22-4	Silver	8.00	U		P	
7440-23-5	Sodium	117.00	U		P	
7440-28-0	Thallium	2.00	U		F	
7440-62-2	Vanadium	5.00	U		P	
7440-66-6	Zinc	6.00	U	*	P	
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP 000029

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

06-003

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): WATER Lab Sample ID: 920666603

Level (low/med): LOW Date Received: 6/16/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	~~1800.00~~		~~*NE~~	~~P~~	4
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U	N	F	UJ 3
7440-39-3	Barium	63.60	B		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	11100.00			P	
7440-47-3	Chromium	7.80	B		P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	11.10	B		P	
7439-89-6	Iron	35000.00		*	P	
7439-92-1	Lead	2.50	B	W	F	J 1,7
7439-95-4	Magnesium	4070.00	B		P	
7439-96-5	Manganese	105.00			P	J6
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U		P	
7440-09-7	Potassium	2580.00	B		P	
7782-49-2	Selenium	2.00	U	W	F	UJ 7
7440-22-4	Silver	8.00	U		P	
7440-23-5	Sodium	40300.00			P	J6
7440-28-0	Thallium	2.00	U	W	F	UJ 7
7440-62-2	Vanadium	5.00	U		P	
7440-66-6	Zinc	118.00		*	P	J6
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

12-001

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): WATER Lab Sample ID: 920666604

Level (low/med): LOW Date Received: 6/16/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	~~243.00~~		~~*NE~~	~~P~~	4
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.90	B	NW	F	J2,3,7
7440-39-3	Barium	59.30	B		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	22600.00			P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	7.00	U		P	
7439-89-6	Iron	23200.00		*	P	
7439-92-1	Lead	20.50		S	F	
7439-95-4	Magnesium	7380.00			P	
7439-96-5	Manganese	591.00			P	J6
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U		P	
7440-09-7	Potassium	3480.00	B		P	
7782-49-2	Selenium	2.00	U	W	F	UJ7
7440-22-4	Silver	8.00	U		P	
7440-23-5	Sodium	57900.00			P	J6
7440-28-0	Thallium	2.00	U	W	F	UJ7
7440-62-2	Vanadium	5.00	U		P	
7440-66-6	Zinc	47.30		*	P	J6
	Cyanide	20.00	U		C	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

06-002

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): SOIL Lab Sample ID: 920666605

Level (low/med): LOW Date Received: 6/16/92

% Solids: 82.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2710.00			P	
7440-36-0	Antimony	8.49	U		P	
7440-38-2	Arsenic	4.70			F	
7440-39-3	Barium	24.30	B		P	
7440-41-7	Beryllium	.33	B		P	J3
7440-43-9	Cadmium	.94	U		P	
7440-70-2	Calcium	2120.00			P	J5
7440-47-3	Chromium	16.10			P	
7440-48-4	Cobalt	3.40	B		P	
7440-50-8	Copper	29.60			P	
7439-89-6	Iron	14700.00			P	
7439-92-1	Lead	59.80		S	F	
7439-95-4	Magnesium	801.00	B		P	J5
7439-96-5	Manganese	112.00			P	
7439-97-6	Mercury	.32			CV	
7440-02-0	Nickel	5.20	B		P	
7440-09-7	Potassium	792.00	B		P	
7782-49-2	Selenium	.48	U	W	F	UJ3/7
7440-22-4	Silver	2.10	B		P	J3
7440-23-5	Sodium	332.00	B		P	
7440-28-0	Thallium	.48	U		F	
7440-62-2	Vanadium	18.30			P	
7440-66-6	Zinc	121.00			P	J6
	Cyanide	1.21	U		C	UJ3

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

06-201

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): WATER Lab Sample ID: 920666606

Level (low/med): LOW Date Received: 6/16/92

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	46.00	U	NE	P	
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U	N	F	UJ 3
7440-39-3	Barium	7.00	U		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	62.00	U		P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	7.00	U		P	
7439-89-6	Iron	30.00	U	*	P	
7439-92-1	Lead	2.00	U	W	F	UJ1,7
7439-95-4	Magnesium	142.00	B		P	
7439-96-5	Manganese	2.00	U		P	
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U		P	
7440-09-7	Potassium	1070.00	B		P	
7782-49-2	Selenium	2.00	U		F	
7440-22-4	Silver	8.00	U		P	
7440-23-5	Sodium	261.00	B		P	
7440-28-0	Thallium	2.00	U		F	
7440-62-2	Vanadium	23.70	B		P	
7440-66-6	Zinc	6.00	U	*	P	
	Cyanide	10.00	U		C	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA CLP 000033

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

17-003

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): SOIL Lab Sample ID: 920666607

Level (low/med): LOW Date Received: 6/16/92

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1530.00			P	
7440-36-0	Antimony	8.79	U		P	
7440-38-2	Arsenic	3.50			F	J2
7440-39-3	Barium	5.50	B		P	
7440-41-7	Beryllium	.27	B		P	J3
7440-43-9	Cadmium	.98	U		P	
7440-70-2	Calcium	959.00	B		P	J5
7440-47-3	Chromium	12.40			P	
7440-48-4	Cobalt	1.71	U		P	
7440-50-8	Copper	6.40			P	
7439-89-6	Iron	10400.00			P	
7439-92-1	Lead	12.80		S	F	
7439-95-4	Magnesium	386.00	B		P	J5
7439-96-5	Manganese	29.60			P	
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.39	U		P	
7440-09-7	Potassium	219.00	B		P	
7782-49-2	Selenium	.49	U	W	F	UJ3,7
7440-22-4	Silver	1.95	U		P	UJ3
7440-23-5	Sodium	5500.00			P	
7440-28-0	Thallium	.49	U	W	F	UJ7
7440-62-2	Vanadium	16.10			P	
7440-66-6	Zinc	33.90			P	J6
	Cyanide	3.09			C	J3

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

12-002

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (soil/water): SOIL Lab Sample ID: 920666609

Level (low/med): LOW Date Received: 6/16/92

% Solids: 52.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5220.00			P	
7440-36-0	Antimony	13.80	U		P	
7440-38-2	Arsenic	10.20			F	
7440-39-3	Barium	61.70	B		P	
7440-41-7	Beryllium	1.10	B		P	J3
7440-43-9	Cadmium	1.70	B		P	
7440-70-2	Calcium	2000.00			P	J5
7440-47-3	Chromium	45.40			P	
7440-48-4	Cobalt	8.20	B		P	
7440-50-8	Copper	58.00			P	
7439-89-6	Iron	19900.00			P	
7439-92-1	Lead	261.00		S	F	
7439-95-4	Magnesium	1380.00	B		P	J5
7439-96-5	Manganese	71.10			P	
7439-97-6	Mercury	.37			CV	
7440-02-0	Nickel	15.60			P	
7440-09-7	Potassium	1010.00	B		P	
7782-49-2	Selenium	.71	U	W	F	UJ3,7
7440-22-4	Silver	3.50	B		P	J3
7440-23-5	Sodium	341.00	B		P	
7440-28-0	Thallium	.71	U		F	
7440-62-2	Vanadium	21.20			P	
7440-66-6	Zinc	306.00			P	J6
	Cyanide	1.92	U		C	UJ3

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

01-002S

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	5793.3010		2309.5000		2000.00	174.2	N	P
Antimony	75-125	502.2000		36.0000	U	500.00	100.4		P
Arsenic	75-125	28.0000		2.0000	U	40.00	70.0	N	F
Barium	75-125	1722.2000		39.1000	B	2000.00	84.2		P
Beryllium	75-125	43.8000		1.0000	B	50.00	85.6		P
Cadmium	75-125	42.9000		4.0000	U	50.00	85.8		P
Calcium									NR
Chromium	75-125	225.6000		33.1000		200.00	96.3		P
Cobalt	75-125	442.3999		7.0000	U	500.00	88.5		P
Copper	75-125	223.2000		8.1000	B	250.00	86.0		P
Iron	75-125	7959.6990		5034.3980		1000.00	292.5		P
Lead	75-125	17.5000		2.0000	B	20.00	77.5		F
Magnesium									NR
Manganese	75-125	456.8999		20.4000		500.00	87.3		P
Mercury	75-125	.9470		.1000	U	1.00	94.7		CV
Nickel	75-125	441.0000		18.0000	U	500.00	88.2		P
Potassium									NR
Selenium	75-125	10.7000		2.0000	U	10.00	107.0		F
Silver	75-125	51.7000		8.0000	U	50.00	103.4		P
Sodium									NR
Thallium	75-125	47.8000		2.0000	U	50.00	95.6		F
Vanadium	75-125	460.0000		9.9000	B	500.00	90.0		P
Zinc	75-125	615.2000		192.5000		500.00	84.5		P
Cyanide									NR

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

12-001S

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix: WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide	75-125	103.0490		20.0000	U	100.00	103.0		C

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

06-002S

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 82.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide	75-125	5.5460		1.2060	U	6.03	92.0		C

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix: Level (low/med):

% Solids for Sample:

Concentration Units (ug/L or mg/kg dry weight):

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

Comments:

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

01-002A

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix: Level (low/med):

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		5656.00		2309.50		4000.0	83.7		P
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

FORM V (Part 2) - IN

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

01-002D

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (water/soil): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum		2309.5000		1758.2000		27.1	*	P
Antimony		36.0000	U	36.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		39.1000	B	37.3000	B	4.7		P
Beryllium		1.0000	B	1.0000	U	200.0		P
Cadmium		4.0000	U	4.0000	U			P
Calcium		2504.3000	B	2552.3000	B	1.9		P
Chromium	10.0	33.1000		24.3000		30.7		P
Cobalt		7.0000	U	7.0000	U			P
Copper		8.1000	B	7.0000	U	200.0		P
Iron		5034.3980		3691.6000		30.8	*	P
Lead		2.0000	B	2.0000	U	200.0		F
Magnesium		1540.8000	B	1412.3000	B	8.7		P
Manganese	15.0	20.4000		19.8000		3.0		P
Mercury		.1000	U	.1000	U			CV
Nickel		18.0000	U	18.0000	U			P
Potassium	5000.0	4833.8010	B	5030.6020		4.0		P
Selenium		2.0000	U	2.0000	U			F
Silver		8.0000	U	8.0000	U			P
Sodium		2921.3000	B	3012.7000	B	3.1		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		9.9000	B	5.0000	U	200.0		P
Zinc		192.5000		152.6000		23.1	*	P
Cyanide	-	-						NR

FORM VI - IN

03/90

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

12-001D

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (water/soil): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide	-	20.0000	U	20.0000	U			C

FORM VI - IN

03/90

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

06-002D

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-04

Lab Code: WESTON Case No.: NWS SAS No.: SDG No.: CLP666

Matrix (water/soil): SOIL Level (low/med): LOW

% Solids for Sample: 82.9 % Solids for Duplicate: 82.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide	-	1.2060	U	1.2060	U			C

FORM VI - IN

03/90

	YES	NO	N/A
A.1.1 Contract Compliance Screening Report (CCS) - Present?	[ ]		✓
ACTION: If no, contact RSCC.			
A.1.2 Record of Communication (from RSCC) - Present?	[ ]		✓
ACTION: If no, request from RSCC.			
A.1.3 Trip Report - Present and complete?	[ ]		✓
ACTION: If no, contact RSCC for trip report.			
A.1.4 Sample Traffic Report - Present?	[ ]		✓
Legible?	[ ]		✓
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.5 Cover Page - Present?	[✓]		
Is cover page properly filled in and signed by the lab manager or the manager's designee?	[✓]		
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[ ]		✓
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	[ ]		✓
(b) Form I's?	[✓]		
ACTION: If no for any of the above, contact RSCC for clarification.			

A.1.6	Form I to IX	Yes	No	N/A
A.1.6.1	Are all the Form I through Form IX labeled with:			
	Laboratory name?	[✓]	___	___
	Case/SAS number?	[✓]	___	___
	EPA sample No.?	[✓]	___	___
	SDG No.?	[✓]	___	___
	Contract No.?	[✓]	___	___
	Correct units?	[✓]	___	___
	Matrix?	[✓]	___	___

ACTION: If no for any of the above, note under Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.6.2	Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:			
	(NOTE: Check all forms against raw data.)			
	(a) all analytes analyzed by ICP?	[✓]	___	___
	(b) all analytes analyzed by GFAA?	[✓]	___	___
	(c) all analytes analyzed by AA Flame?	[ ]	___	✓
	(d) Mercury?	[✓]	___	___
	(e) Cyanide?	[✓]	___	___

ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.

Title: Evaluation of Metals Data for the Contract Laboratory Program Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.7	**Raw Data**			
A.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	[✓]	___	___
	Digestion Log for furnace AA Form XIII present?	[✓]	___	___
	Distillation Log for mercury Form XIII present?	[✓]	___	___
	Distillation Log for cyanides Form XIII present?	[✓]	___	___
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	[✓]	___	___
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	[✓]	___	___
	Are preparation dates present on sample preparation logs/bench sheets?	[✓]	___	___
A.1.7.2	Measurement read out record present? ICP	[✓]	___	___
	Flame AA	[___]	___	✓
	Furnace AA	[✓]	___	___
	Mercury	[✓]	___	___
	Cyanides	[✓]	___	___
A.1.7.3	Are all raw data to support all sample analyses and QC operations present?	[✓]	___	___
	Legible?	[✓]	___	___
	Properly Labeled?	[✓]	___	___

ACTION: If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

		YES	NO	N/A
A.1.8	**Holding Times** - (aqueous and soil samples)			
	(Examine sample traffic reports and digestion/distillation logs.)			
	Mercury analysis (28 days). . . . . exceeded?	___	[✓]	___
	Cyanide distillation (14 days). . . . . exceeded?	___	[✓]	___
	Other Metals analysis (6 months). . . . exceeded?	___	[✓]	___
	NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.			
	ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.			
A.1.8.2	Is pH of aqueous samples for: Metals Analysis >2?	___	[✓]	___
	Cyanides Analysis <12?	___	[✓]	___
	Action: If yes, flag the associated metals and cyanides data as estimated.			
A.1.9	**Form I (Final Data)**			
A.1.9.1	Are all Form I's present and complete?	[✓]	___	___
	ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
A.1.9.2	Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	[✓]	___	___
	Are soil sample results for each parameter corrected for percent solids?	[✓]	___	___
	Are all "less than IDL" values properly coded with "U"?	[✓]	___	___

		YES	NO	N/A
	Are the correct concentration qualifiers used with final data?	[✓]	✓	___
	ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.	PB H 8/20/92		
A.1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[✓]	___	___
	Was a brief physical description of samples given on Form I's?	[✓]	___	___
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?	___	[✓]	___
	ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the"Data Assessment Narrative".			
A.1.10	**Calibration**			
A.1.10.1	Is record of at least 2 point calibration present for ICP analysis?	[✓]	___	___
	Is record of 5 point calibration present for Hg analysis?	[✓]	___	___
	Is record of 4 point calibration present for:			
	Flame AA?	[___]	___	✓
	Furnace AA?	[✓]	___	___
	Cyanides?	[✓]	___	___
	Is one calibration standard at the CRDL level for all AA (except Hg) and cyanides analyses?	[✓]	___	___

ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

		YES	NO	N/A
A.1.10.2	Is correlation coefficient less than 0.995 for:			
	Mercury Analysis?	___	[✓]	___
	Cyanide Analysis?	___	[✓]	___
	Atomic Absorption Analysis?	___	[✓]	___

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

A.1.10.3	In the instance where less than 4 standards are measured in absorbance (or peak area, peak height,etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration within ±10% of the true values?	[✓]	___	___

ACTION: If no, flag the associated data as estimated if standards are not within ±10% of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

A.1.11 Form II A (Initial and Continuing Calibration Verification)-

A.1.11.1	Present and complete for every metal and cyanide?	[✓]	___	___
	Present and complete for AA and ICP when both are used for the same analyte?	[✓]	___	___

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2	Circle on each Form IIA all percent recoveries that are outside the contract windows. Are all calibration standards (initial and continuing) within control limits:			
	Metals- 90-110%R?	[✓]	___	___
	Hg - 80-120%R?	[✓]	___	___
	Cyanides- 85-115%R?	[✓]	___	___

		YES	NO	N/A
	ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or CCV %R is 75-89% (CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV is outside the range 75-125% (CN, 70-130%; Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.			
A.1.11.3	Was continuing calibration performed every 10 samples or every 2 hours?	[✓]	___	___
	Was ICV for cyanides distilled?	[___]	✓	___
	ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.12	**Form II B (CRDL Standards for AA and ICP)** -			
A.1.12.1	Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?	[✓]	___	___
	Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?	[___]	✓	___
	Was a 2xCRDL (or 2xIDL when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for AL,Ba,Ca,Fe,Mg,Na,or K is not required.)	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges. The affected ranges are: AA Analysis - **True Value ± CRDL ICP Analysis - **True Value ± 2CRDL CN Analysis - **True Value ± 0.5 x True Value.			

**True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL. Compute the concentration of the missing mid-range standard from the calibration range.

		YES	NO	N/A
A.1.12.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and twice every eight hours of ICP run?	[✓]		
	ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".			
A.1.12.3	Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.			
	Are CRA and CRI standards within control limits:			
	Metals 80 - 120%R?	[ ]	✓	
	Is mid-range standard within control limits:			
	Cyanide 80 - 120%R?	[✓]		
	ACTION: Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.			
	Note: Flag or reject the final results only when sample raw data are within the affected ranges and the CRDL standards are outside the acceptance windows.			
A.1.13	Form III (Initial and Continuing Calibration Blanks)			
A.1.13.1	Present and complete?	[✓]		
	For both AA and ICP when both are used for the same analyte?	[ ]		✓
	Was an initial calibration blank analyzed?	[✓]		
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	[✓]		

		YES	NO	N/A
	ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/ Non-Compliance section of the "Data Assessment Narrative".			
A.1.13.2	Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).			
	Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	[✓]	___	___
	Are all calibration blanks less than two times Instrument Detection Limit (when IDL>CRDL)?	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated (J) positive sample results when raw sample value is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2xIDL) and nearest good calibration blank. Flag five samples on either side of the calibration blank outside the control limits.			
A.1.14	FORM III (Preparation Blank) - (Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.14.1	Was one prep. blank analyzed for:			
	each Sample Delivery Group (SDG)?	[✓]	___	___
	each batch of digested samples?	[✓]	___	___
	each matrix type?	[✓]	___	___
	both AA and ICP when both are used for the same analyte?	[___]	___	✓
	ACTION: If no for any of the above, flag as estimated (J) all the associated positive data <10 x IDLs for which prep. blank was not analyzed.			
	NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			

		YES	NO	N/A
A.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	___	[✓]	___
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep.blank?	___	[✓]	___
	ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.			
A.1.14.3	Is concentration of prep. blank value (Form III) less than two times IDL, when IDL is greater than CRDL?	[✓]	___	___
	ACTION: If no, reject (red-line) all positive sample results when sample raw data are less than 10 times the prep. blank value.			
A.1.14.4	Is concentration of prep. blank below the negative CRDL?	___	[✓]	___
	ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.			
A.1.15	**Form IV (ICP Interference Check Sample)**			
A.1.15.1	Present and complete?	[✓]	___	___
	(**NOTE:** Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
	Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	[✓]	___	___
	ACTION: If no, flag as estimated (J) all the samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.15.2	Circle all values on each Form IV that are more than ± 20% of true or established mean value.			
	Are all Interference Check Sample results inside the control limits (± 20%)?	[✓]	___	___
	If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	[✓]	___	___

		YES	NO	N/A
	ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").			
A.1.16	Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation)- (Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)			
A.1.16.1	Present and complete for: each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each conc. range (i.e. low, med., high)?	[✓]	___	___
	For both AA and ICP when both are used for the same analyte?	[___]	___	✓
	ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SOW for which spiked sample was not analyzed.			
	NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.16.2	Was field blank used for spiked sample?	___	[✓]	___
	ACTION: If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.16.3	Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).			
	Are all recoveries within control limits?	[___]	✓	___
	If no, is sample concentration greater than or equal to four times spike concentration?	[___]	✓	___

	YES	NO	N/A
ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.			
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	[ ]	✓	
ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".			
A.1.16.4 **Aqueous** Are any spike recoveries:			
(a) less than 30%?		[✓]	
(b) between 30-74%?	✓	[ ]	
(c) between 126-150%?		[✓]	
(d) greater than 150%?	✓	[ ]	
ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".			
A.1.16.5 **Soil/Sediment** Are any spike recoveries:			
(a) less than 10%?		[✓]	
(b) between 10-74%?	✓	[ ]	
(c) between 126-200%?		[✓]	
(d) greater than 200%?		[✓]	

		YES	NO	N/A
	ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".			
A.1.17	Form VI (Lab Duplicates)			
A.1.17.1	Present and complete for: each SDG?	[✓]		
	each matrix type?	[✓]		
	each concentration range (i.e. low, med., high)?	[✓]		
	both AA and ICP when both are used for the same analyte?	[✓]		
	ACTION: If no for any the above, flag as estimated (J) all the data ≥CRDL* for which duplicate sample was not analyzed.			
	Note: 1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated.			
	2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.			
A.1.17.2	Was field blank used for duplicate analysis?		[✓]	
	ACTION: If yes, flag all data ≥CRDL* as estimated (J) for which field blank was used as duplicate.			
A.1.17.3	Are all values within control limits (RPD 20% or difference ≤ ±CRDL)?	[✓]		
	If no, are all results outside the control limits flagged with an * on Form I's and VI?	[✓]		
	ACTION: If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			

* Substitute IDL for CRDL when IDL > CRDL.

	YES	NO	N/A

NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

A.1.17.4 Aqueous

Circle on each Form VI all values that are:

RPD > 50%, or
Difference > CRDL*

	YES	NO	N/A
Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[✓]	___
Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[✓]	___

ACTION: If yes, flag the associated data as estimated.

A.1.17.5 Soil/Sediment

Circle on each Form VI all values that are:

RPD > 100%, or

Difference > 2 x CRDL*

	YES	NO	N/A
Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) : > 100%?	✓	[___]	___
Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) : > 2x*CRDL?	___	[✓]	___

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
	ACTION: If yes, flag the associated data as estimated.			
A.1.18	**Field Duplicates**			
A.1.18.1	Were field duplicates analyzed?	[___]	✓	___

ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.

NOTE:
1. Do not calculate RPD when both values are less than IDL.
2. Flag all associated data only for field duplicate pair.

A.1.18.2 **Aqueous**

Circle all values on self prepared Form VI for field duplicates that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[___]	✓
Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[___]	✓

ACTION: If yes, flag the associated data as estimated.

Substitute IDL for CRDL when IDL > CRDL.
Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.18.3	**Soil/Sediment**			
	Circle all values on self prepared Form VI for field duplicates that are:			
	RPD >100%, or			
	Difference > 2 x CRDL*			
	Is any RPD (where sample and duplicate are both greater than 5 times *CRDL) : >100%?	___	[___]	✓
	Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x *CRDL): >2x *CRDL?	___	[___]	✓
	ACTION: If yes, flag the associated data as estimated.			
A.1.19	**Form VII (Laboratory Control Sample)** (Note: LCS - not required for aqueous Hg and cyanide analyses.)			
A.1.19.1	Was one LCS prepared and analyzed for:			
	each SDG?	[✓]	___	___
	each batch samples digested/distilled?	[✓]	___	___
	both AA and ICP when both are used for the same analyte?	[✓]	___	___
	ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory for submittal of results of LCS. Flag as estimated (J) all the data for which LCS was not analyzed.			
	NOTE: If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.			

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.19.2	**Aqueous LCS**			
	Circle on each Form VII the LCS percent recoveries outside control limits (80 - 120%) except for aqueous Ag and Sb.			
	Is any LCS recovery: less than 50%?	___	[✓]	___
	between 50% and 79%?	___	[✓]	___
	between 121% and 150%?	___	[✓]	___
	greater than 150%?	___	[✓]	___

ACTION: Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.

A.1.19.3 **Solid LCS**

NOTE:
1. If "Found" value of LCS is rejectable due to duplicate injections or analytical spike recovery criteria, regardless of LCS recovery, flag the associated data as estimated (J).
2. If IDL of an analyte is equal to or greater than true value of LCS, disregard the "Action" below even though LCS is out of control limits.

Is LCS "Found" value higher than the control limits on Form VII?	___	[✓]	___

ACTION: If yes, qualify all associated positive data as estimated.

Is LCS "Found" value lower than the Control limits on Form VII?	___	[✓]	___

ACTION: If yes, qualify all associated data as estimated.

		YES	NO	N/A
A.1.20	**Form IX (ICP Serial Dilution)** -			
	NOTE: Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
A.1.20.1	Was Serial Dilution analysis performed for:			
	each SDG?	[✓]	___	___
	each matrix type?	[✓]	___	___
	each concentration range (i.e. low, med.)?	[✓]	___	___
	ACTION: If no for any of the above, flag as estimated all the positive data ≥ 10xIDLs or ≥ CRDL when 10xIDL ≤ CRDL for which Serial Dilution Analysis was not performed.			
A.1.20.2	Was field blank(s) used for Serial Dilution Analysis?	___	[✓]	___
	ACTION: If yes, flag all associated data ≥ 10 x IDL as estimated (J). If 10xIDL ≤ CRDL, flag all data ≥ CRDL.			
A.1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	[✓]	___	___
	ACTION: If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each Form IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%?	✓	[___]	___
	≥ 100%?	___	[✓]	___

		YES	NO	N/A
	ACTION: Flag as estimated (J) all the associated sample data ≥ 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which PD is greater than or equal to 100%.			
	Note: Flag or reject on Form I's only the sample results whose associated raw data are ≥ 10xIDL (or ≥ CRDL when 10xIDL≤ CRDL)			
.1.21	Furnace Atomic Absorbtion (AA) QC Analysis			
.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	[✓]	___	___
	ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	[✓]	___	___
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	[✓]	___	___
	ACTION: If no for any of the above, flag all the associated data as estimated.			
.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?	✓	[___]	___
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-200%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			

An[illegible]tical spike is not required on the pre-digestion spiked sample.

		YES	NO	N/A
	NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.			
A.1.22	**Form VIII (Method of Standard Addition Results)**			
A.1.22.1	Present?	[✓]		
	If no, is any Form I result coded with "S" or a "+"?		[✓]	
	ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.22.2	Is coefficient of correlation for MSA less than 0.990 for any sample?		[✓]	
	ACTION: If yes, reject (red-line) the affected data.			
A.1.22.3	Was *MSA required for any sample but not performed?		[✓]	
	Is coefficient of correlation for MSA less than 0.995?		[✓]	
	Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?		[✓]	
	ACTION: If yes for any of the above, flag all the associated data as estimated (J).			
A.1.22.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page E-23?	[✓]		
	ACTION: If no, note exception under Contract Problem/ Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.			

(MSA is not required on LCS and prep. blank.

		YES	NO	N/A
A.1.23	**Dissolved/Total or Inorganic/Total Analytes** -			
A.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s).	___	[___]	✓
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	___	[___]	✓
	NOTE: 1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration. 2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents. 3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.			
A.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[___]	✓
A.1.23.3	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%?	___	[___]	✓
	ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.			
A.1.24	**Form I (Field Blank)** -			
	(Note: Designate "Field Blank" as such on Form I.)			
A.1.24.1	Circle all field blank values on Form I that are greater than CRDL, (or 2 x IDL when IDL > CRDL).			
	Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[___]	___	✓

	YES	NO	N/A
If no, was field blank value already rejected due to other QC criteria?	[ ]		✓

ACTION: If no, reject (except field blank results) all associated positive sample data less than or equal to five times the field blank value. Reject on Form I's the soil sample results that when converted to ug/L on wet basis are less than or equal to five times the field blank value in ug/L.

A.1.25 Form X, XI, XII (Verification of Instrumental Parameters).

A.1.25.1 Is verification report present for:

	YES	NO	N/A
Instrument Detection Limits (quarterly)?	[✓]		
ICP Interelement Correction Factors (annually)?	[✓]		
ICP Linear Ranges (quarterly)?	[✓]		

ACTION: If no, contact TPO of the lab.

A.1.25.2 Form X (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)

	YES	NO	N/A
A.1.25.2.1 Are IDLs present for: all the analytes?	[✓]		
all the instruments used?	[✓]		
For both AA and ICP when both are used for the same analyte?	[ ]		✓

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

	YES	NO	N/A
A.1.25.2.2 Is IDL greater than CRDL for any analyte?		[✓]	
If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL.	[✓]		

	YES	NO	N/A
Action : If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			
A.1.25.3 **Form XI (Linear Ranges)**			
A.1.25.3.1 Was any sample result higher than high linear range of ICP.	___	[✓]	___
Was any sample result higher than the highest calibration standard for non-ICP parameters?	___	[✓]	___
If yes for any of the above, was the sample diluted to obtain the result on Form I?	[✓]	___	___
ACTION: If no, flag the result reported on Form I as estimated(J).			
A.1.26 **Percent Solids of Sediments**			
A.1.26.1 Are percent solids in sediment(s): < 50%?	___	[✓]	___
< 10%?	___	[✓]	___

ACTION: If yes, qualify as estimated all the results of a sample that has per cent solids between 10%-50% (i.e. moisture content between 50%-90%). Reject all the results of a sample that has per cent solids less than 10% (i.e. moisture content greater than 90%).

NOTE: Reject or flag(J) only the sample results that were not previously rejected or flaged due to other QC criteria.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

Case#	NWS	Site	Naval Weapons Station	Matrix:	Soil ✓
SDG#	CLP 666	Lab	Roy F. Weston		Water ✓
Contractor	Roy F. Weston	Reviewer	Heartland ESI		Other

A.2.1 Validation Flags- The following flags have been applied in red by the data validator and must be considered by the data user.

J- This flag indicates the result qualified as estimated

Red- Line- A red-line drawn through a sample result indicates unusable value. The red-lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data- The results that do not carry "J" or "red-line" are fully usable.

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0.

A.2.2 The data assessment is given below and on the attached sheets.

1. CRDL Standard for Lead was low. All data near the CRDL will be qualified as estimated.
2. CRDL Standard for Arsenic was above the upper control limit. All positive results near the CRDL are qualified as estimated.
3. The Matrix Spike recoveries for soils were below the lower controllimit. All data is estimated. Elements Beryllium, Selenium, Silver and Cyanide. The Matrix Spike recovery for water for Arsenic was below the lower control limit. All

..2.2 (continuation)

data is qualified as estimated.

4. The Matrix Spike recovery for Aluminum for waters was greater than 150%. All positive results are rejected.

5. The Duplicate Analyses for soil for Calcium and Magnesium were outside the control limit. All data is qualified as estimated.

6. The Serial Dilution for waters for Zinc and for soils for Aluminum, Manganese, Sodium and Zinc were outside the control limit. All positive results are estimated if greater than 10 times the CRDL.

7. the post digestion for the following elements were below the lower control limit. All data is qualified as estimated.

As 12-001

Pb 01-002, 06-003 06-201

Se 06-003, 12-001, 06-002, 17-003, 12-002

TL 06-003, 12-001, 17-003

RBH 8/20/92

A.2.3 Contract-Problem/Non-Compliance

QC for soils found in another SDG. Data was not flagged for QC as required. ICV and midrange standards for Cyanide were not distilled as required.

PBH 8/20/92

MMB/ESAT Rviewer: _____ Date: _____
Signature

Contractor Reviewer: Paul B. Hanly Date: 8/20/92
Signature

Verified by: Christopher D. Fogellin Date: 8/25/92

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

of Review: _____ Date: _____ Case #: _____

: _____ Lab Name: _____

ewer's Initials: _____ Number of Samples: _____

Analytes Rejected Due to Exceeding Review Criteria:*

	Holding Times	Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Recovery	Duplicates Lab	Duplicates Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
						1							1	
ame AA														
rnace AA														
rcury														
tal						1							1	
her														

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:*

						2	2				5		9	
ame AA														
rnace AA		2				2						4	8	
rcury														
tal		2				4	2				5	4	17	
her						1							1	

te:
Asterisk (*) Indicates additional exceedances of review criteria.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.6: CLP Data Assessment Checklist

Date: Jan. 1992
Number: HW-2
Revision: 11

Inorganic Analysis

INORGANIC REGIONAL DATA ASSESSMENT

Region II

CASE NO. NWS

SITE Naval Weapons Station

LABORATORY Roy F. Weston

NO. OF SAMPLES/ MATRIX 5 waters 3 soils

SDG# CLP 666

REVIEWER (IF NOT ESD) Heartland EST

SOW# 390

REVIEWER'S NAME Paul B. Humbey

DPO: ACTION _____ FYI _____

COMPLETION DATE 8/20/92

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	O	O	O	O
2.	CALIBRATIONS	↓	↓	↓	↓
3.	BLANKS	↓	↓	↓	↓
4.	ICS	↓	↓	↓	↓
5.	LCS	↓	↓	↓	↓
6.	DUPLICATE ANALYSIS	↓	↓	↓	↓
7.	MATRIX SPIKE	Z	↓	↓	↓
8.	MSA		↓	↓	↓
9.	SERIAL DILUTION	O	↓	↓	↓
10.	SAMPLE VERIFICATION	↓	↓	↓	↓
11.	OTHER QC	↓	↓	↓	↓
12.	OVERALL ASSESSMENT	↓	↓	↓	↓

O = Data has no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS:

AREAS OF CONCERN:

NOTABLE PERFORMANCE:

August 25, 1992

TO: John Williams Jr.
Project Manager
Roy F. Weston Inc.

FROM: Paul Humburg
Project Manager
Heartland ESI.

SUBJECT: Submittal of Data Validation results for Naval Weapons Station, New Jersey. One (1) water sample and one (1) Matrix Spike and Duplicate pair was analysed by the Roy F. Weston Lionville Laboratory.

Navy No.	RFW No.
06-003	920666603

Heartland ESI has reviewed the data for the samples listed above for Ground Water parameters using good professional judgement in context with the methods from the USEPA Method for Chemical Analysis of Water and Wastes and the Standard Methods for the Examination of Water and Waterwater 16 ed. Analytical data in this report were screened to determine usability of the results and also to determine contractual compliance relative to the requirements and deliverables of the Region II Protocol. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results.

Inorganic fraction was reviewed as follows:

Groundwater Parameters reviewed by Paul B. Humburg

Please refer to the Annotated From 1s and the detailed data validation report for additional information. Specific comments are provided on the following pages.

DATA ASSESSMENT NARRATIVE
Groundwater Parameters

General

The inorganic 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, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations and reported results are reviewed utilizing the raw instrument data. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from **Naval Weapons Station,N.J., SDG# 9206666**, the analysis of one (1) field water samples and one (1) matrix spike and duplicate pair. Overall, the groundwater parameter data quality was good. The USEPA analytical protocol was followed as required.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in by USEPA. Protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

NO deficiencies in this section.

Spike Recovery

No deficiencies in this section.

Matrix Spike Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE	DL	QL	SPECIFIC FINDING

All data stands as reported without qualification.

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 07/17/92

CLIENT: NAVAL WEAPONS/COLTSNECK
WORK ORDER: 1771-15-04-0000

WESTON BATCH #: 9206L666

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	01-002-M001	Nitrate Nitrite	1.2		MG-N/L	0.10
		Ncellulose/Nglycerine	5.0	u	UG/L	5.0
-002	01-002-M201	Nitrate Nitrite	0.10	u	MG-N/L	0.10
		Ncellulose/Nglycerine	5.0	u	UG/L	5.0
-003	06-003-M001	Chloride	72.5		MG/L	5.0
		Chemical Oxygen Demand	28.1		MG/L	5.0
		Nitrate Nitrite	0.13		MG-N/L	0.10
		Ammonia, as N	0.20		MG/L	0.10
		Total Organic Carbon	5.8		MG/L	0.50
		Phosphate, as P	0.098		MG/L	0.020
		Sulfate	75.7		MG/L	10.0
		Turbidity	219		NTU	0.050
-004	12-002-W001	Cyanide, Total	20.0	u	UG/L	20.0
-005	06-002-D001	% Solids	82.9		%	0.10
		Cyanide, Total	1.2	u	MG/KG	1.2
-006	06-002-D201	Cyanide, Total	10.0	u	UG/L	10.0
-007	17-003-D001	% Solids	78.0		%	0.10
		Cyanide, Total	3.1		MG/KG	1.3
-009	12-002-D001	% Solids	52.0		%	0.10
		Cyanide, Total	1.9	u	MG/KG	1.9
-014	01-002-M001 NG	Ncellulose/Nglycerine	5.0	u	UG/L	5.0
-015	01-002-M201 NG	Ncellulose/Nglycerine	5.0	u	UG/L	5.0

ROY F. WESTON INC.

MICROBIOLOGICAL DATA SUMMARY REPORT 06/23/92

CLIENT: NAVAL WEAPONS/COLTSNECK
WORK ORDER: 1771-15-04-0000

WESTON BATCH #: 9206L666

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-003	06-003-M001	BOD 5 Day	1.1	MG/L	1.0

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

Data Validation Report

August 25, 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 16, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were two (2) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L666.**

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**	**PICA**
01-002-M001	9206L666-001	WATER	X
01-002-M101	9206L666-002	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
PICA -	Picric Acid	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 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

Report Date: 07/14/92 12:33

RFW Batch Number: 9206L666 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000 Page: 1

	Cust ID:	01-002-M001	01-002-M201	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	001	002	92LLC097-MB1	92LLC097-MB1	92LLC097-MB1
	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
Picric Acid		0.86 U	1.03 U	0.82 U	74 %	71 %

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

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

Data Validation Report

August 25, 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 16, 1992 at the **NWS Earle- Coltsneck Naval Weapons Station** site. There were two (2) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9206L666.**

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**
01-002-M001	9206L666-001	WATER	X
01-002-M201	9206L666-002	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 and BS/BSD analysis

Heartland ESI had to use good professional judgement to evaluate the BS/BSD 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 BS/BSD exhibited acceptable recoveries for all the target explosive compounds. No qualifications are 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

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 in water by HPLC

RFW Batch Number: 9206L666 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000

Report Date: 07/14/92 17:04
Page: 1

000008

	Cust ID:	01-002-M001		01-002-M201		BLK		BLK BS		BLK BS		BLK BSD	
Sample Information	RFW#:	001		002		92LLC092-MB1		92LLC092-MB1		92LLC092-MB2		92LLC092-MB2	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
			fl		fl		fl		fl		fl		fl
HMX		1.30	U	1.30	U	1.30	U	92	%	88	%	95	%
RDX		8.98		0.63	U	0.63	U	118	%	86	%	93	%
1,3,5-TNB		0.56	U	0.56	U	0.56	U	84	%	96	%	102	%
1,3-DNB		0.61	U	0.61	U	0.61	U	75	%	95	%	97	%
Nitrobenzene		1.13	U	1.13	U	1.13	U	81	%	98	%	97	%
TETRYL		0.66	U	0.66	U	0.66	U	87	%	82	%	83	%
2,4,6-TNT		0.78	U	0.78	U	0.78	U	89	%	92	%	94	%
2,6-DNT		0.55	U	0.55	U	0.55	U	116	%	93	%	96	%
2,4-DNT		0.82		0.60	U	0.60	U	102	%	93	%	97	%

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