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

DATA VALIDATION

REPORT

ORIGINAL

Client Name:	**Roy F. Weston, Inc.**
Site Name:	**NWS - Earle, ColtsNeck, NJ**
RFW Lot No.:	**9205L341**
QA/QC Level:	**NEESA Level D - EPA Region II**
Fractions:	**VOA, SVOA, Pesticide/Aroclors, Metals & TPH**
Volume Number:	**1 of 1**

HEARTLAND ENVIRONMENTAL SERVICES, INC.
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Data Validation Report

July 10, 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 May 08 and 15, 1992 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were six (6) soil samples with one (1) MS/MSD and three (3) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9205L341.**

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, March, 1990 requirements and good professional judgement.

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

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**VOA**
09-001-T007	9205L341-011	SOIL	X
09-001-T007MS	9205L341-011	SOIL	X
09-001-T007MSD	9205L341-011	SOIL	X
09-002-T010	9205L341-012	SOIL	X
09-003-T009	9205L341-013	SOIL	X
09-004-T005	9205L341-014	SOIL	X
09-005-T006	9205L341-015	SOIL	X
09-006-T008	9205L341-016	SOIL	X
09-006-T008RE	9205L341-016	SOIL	X
09-001-T207	9205L341-020	WATER	X
17-004-B311	9205L341-021	WATER	X
09-001-T307	9205L341-022	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Gene Watson	Chris Scarpellino

DATA ASSESSMENT 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 the Region II SOP No. HW-6, March, 1990 Revision. All comments made within this report should be considered when examining the analytical results (Form I's).

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

One (1) of the two (2) initial calibrations that were analyzed by the laboratory for these samples contained a RRF for 2-butanone that was less than 0.05. However, qualifications are not required since samples were not analyzed after the initial calibration.

Continuing Calibrations

The three (3) continuing calibrations that were analyzed with this data package was not acceptable for all compound RRFs and %Ds.

Specific findings:

1. For the samples listed below, the continuing calibration, AK5I02, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVW091-MB1	2-butanone
09-001-T207	chloromethane
09-001-T307	acetone
17-004-B311	

2. For the samples listed below, the continuing calibration, AK5I02, contained the following compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject (R) all non detect results.

VBLKLVW091-MB1	2-butanone
09-001-T207	
09-001-T307	
17-004-B311	

3. For the samples listed below, the continuing calibration, W051804, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVW094-MB1	bromomethane
09-001-T007	chloroethane
09-002-T010	4-methyl-2-pentanone
09-006-T008	
09-001-T007MS	
09-001-T007MSD	

Continuing Calibrations (continued)

4. For the samples listed below, the continuing calibration, W051804, contained the following compounds with %Ds greater than 50%, but less than 90%. Qualify all positive results for these compounds as estimated (J) and all non detect results as estimated (UJ).

VBLKLVW094-MB1	2-butanone
09-001-T007	
09-002-T010	
09-006-T008	
09-001-T007MS	
09-001-T007MSD	

5. For the samples listed below, the continuing calibration, W051904, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

VBLKLVW095-MB1	2-hexanone
09-003-T009	4-methyl-2-pentanone
09-004-T005	
09-005-T006	
09-006-T008RE	

Internal Standards

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

Specific findings:

6. For the samples listed below, qualify all the results associated with the non compliant internal standard areas as estimated (J/UJ).

Sample ID	Non Compliant ISTD
09-001-T007MS	All ISTDs
09-001-T007MSD	All ISTDs
09-006-T008	All ISTDs
09-006-T008RE	1,4-difluorobenzene
	chlorobenzene-d_5

Method Blanks

The three (3) method blanks that were analyzed exhibited contamination for methylene chloride and acetone. 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:

7. The following samples have been qualified for methylene chloride and acetone blank contamination. The qualifications are for all the blanks.

   <u>methylene chloride - CRQL</u>

   09-001-T207
   09-001-T007
   09-002-T010
   09-006-T008

   <u>methylene chloride - U</u>

   09-003-T009
   09-004-T005
   09-005-T006
   09-006-T008RE

   <u>acetone - CRQL</u>

   09-006-T008

   <u>acetone - U</u>

   All samples except
   09-006-T008

Surrogates

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

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications are required.

Compound Identification/Quantitation

Specific findings:

8. Reject the results for sample 09-006-T008 in favor of the results from the reanalysis, 09-006-T008RE, which only contained two (2) non compliant internal standard areas.

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
VBLKLVW091-MB1 09-001-T207 09-001-T307 17-004-B311	2-butanone chloromethane acetone	+	J	1
VBLKLVW091-MB1 09-001-T207 09-001-T307 17-004-B311	2-butanone	+/-	J/R	2
VBLKLVW094-MB1 09-001-T007 09-002-T010 09-006-T008 09-001-T007MS 09-001-T007MSD	bromomethane chloroethane 4-methyl-2-pentanone	+	J	3
VBLKLVW094-MB1 09-001-T007 09-002-T010 09-006-T008 09-001-T007MS 09-001-T007MSD	2-butanone	+/-	J/UJ	4
VBLKLVW095-MB1 09-003-T009 09-004-T005 09-005-T006 09-006-T008RE	2-hexanone 4-methyl-2-pentanone	+	J	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
09-006-T008RE	All compounds associated with the internal standards 1,4-difluorobenzene chlorobenzene-d_5	+/-	J/UJ	6
09-001-T207 09-001-T007 09-002-T010 09-006-T008	methylene chloride	+BJ	CRQL	7
09-003-T009 09-004-T005 09-005-T006 09-006-T008RE	methylene chloride	+B	U	7
09-006-T008	acetone	+BJ	CRQL	7
All samples except 09-006-T008	acetone	+B	U	7
09-006-T008	all analytes	+/-	R	8

* 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 0000031 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

09-001-T007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9205L341-011

Sample wt/vol: 5.00 (g/mL) G Lab File ID: W051806

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: not dec. 14 Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm) Dilution Factor: 1.0

Soil Extract Volume: 10000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	12 ~~10~~	~~JB~~ U 7
67-64-1	Acetone	13	~~B~~ U 7
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	1	J
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U UJ 4
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
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-001-T007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011

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

Lab File ID: W051806

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 14

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-002-T010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-012

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

Lab File ID: W051807

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 24

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13 ~~10~~	~~JB~~ U
67-64-1	Acetone	17	~~B~~ U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	1	J
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U UJ
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-002-T010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-012

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

Lab File ID: W051807

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 24

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

1A 0000053

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-003-T009

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-013

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

Lab File ID: W051907

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 21

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	17	~~B~~ U
67-64-1	Acetone	22	~~B~~ U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-003-T009

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-013

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

Lab File ID: W051907

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 21

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-004-T005

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014

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

Lab File ID: W051908

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 6

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	12	~~B~~ U ?
67-64-1	Acetone	12	~~B~~ U ?
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-004-T005

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014

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

Lab File ID: W051908

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 6

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

1A 0000071

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-005-T006

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-015

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

Lab File ID: W051910

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 18

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	13	~~B~~ U ?
67-64-1	Acetone	22	~~B~~ 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

0000072

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-005-T006

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-015

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

Lab File ID: W051910

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 18

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

FORM 1 VOA-TIC 3/90

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-006-T008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-016

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

Lab File ID: W051812

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 21

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	7	JB
67-64-1	Acetone	10	JB
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

R 8

CLIENT SAMPLE NO.

09-006-T008

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-016

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

Lab File ID: W051812

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 21

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

1A 0000089

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-006-T008RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9205L341-016

Sample wt/vol: 5.00 (g/mL) G Lab File ID: W051911

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: not dec. 21 Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm) Dilution Factor: 1.0

Soil Extract Volume: 10000(uL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	13	U	
74-83-9	Bromomethane	13	U	
75-01-4	Vinyl Chloride	13	U	
75-00-3	Chloroethane	13	U	
75-09-2	Methylene Chloride	21	~~B~~ U	7
67-64-1	Acetone	34	~~B~~ U	7
75-15-0	Carbon Disulfide	13	U	
75-35-4	1,1-Dichloroethene	13	U	
75-34-3	1,1-Dichloroethane	13	U	
540-59-0	1,2-Dichloroethene (total)	13	U	
67-66-3	Chloroform	13	U	
107-06-2	1,2-Dichloroethane	13	U	
78-93-3	2-Butanone	13	U	
71-55-6	1,1,1-Trichloroethane	13	U UJ	6
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	

0000990

CLIENT SAMPLE NO.

09-006-T008RE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-016

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

Lab File ID: W051911

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 21

Date Analyzed: 05/19/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

Number TICs found: 0

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

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L341-020

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: AK5I12

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: not dec. Date Analyzed: 05/18/92

GC Column: DB624 ID: .53(mm) Dilution Factor: 1.0

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 ~~2~~	~~JB~~ U ~~J~~
67-64-1	Acetone	23	~~B~~ U ~~J~~
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	1	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	~~10~~	~~U~~ R ~~J~~
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-001-T207

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020

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

Lab File ID: AK5I12

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec.

Date Analyzed: 05/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

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 0000106

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17-004-B311

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-021

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

Lab File ID: AK5I13

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec.

Date Analyzed: 05/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

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	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	~~10~~	~~U~~ R 2
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

000107

CLIENT SAMPLE NO.

17-004-B311

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-021

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

Lab File ID: AK5I13

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec.

Date Analyzed: 05/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

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

CLIENT SAMPLE NO.

09-001-T307

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-022

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

Lab File ID: AK5I14

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec.

Date Analyzed: 05/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

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	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	~~10~~	~~U~~ R 2
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

000010

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-001-T307

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-022

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

Lab File ID: AK5I14

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec.

Date Analyzed: 05/18/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

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.				

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MS

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

Lab File ID: W051813

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 14

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	9	JB
67-64-1	Acetone	13	B
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene		SP
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		SP
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene		SP
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		SP
108-90-7	Chlorobenzene		SP
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

SP: SPIKE COMPOUND

FORM 1 VOA 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MSD

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

Lab File ID: W051814

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: not dec. 14

Date Analyzed: 05/18/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	9	JB
67-64-1	Acetone	20	B
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene		SP
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		SP
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene		SP
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		SP
108-90-7	Chlorobenzene		SP
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

SP: SPIKE COMPOUND

FORM 1 VOA

3/90

ATTACHMENT 1
SOP NO. HW-6

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TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 92052341 SDG No. — LABORATORY R.F. Weston 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), "U" (non-detects), "R" (unusable),or "NJ" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Reviewer's Signature: [signature] Date: 7/10/1992

Verified By: _____ Date: __/____/19__

DATA ASSESSMENT:

1. HOLDING TIME:

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

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

No Action

7-10-92

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DATA ASSESSMENT:

2. BLANK CONTAMINATION:

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

A) Method blank contamination

CH_2Cl_2 - CRQL	CH_2Cl_2 - U	Acetone - U	Acetone - CRQL
09.001.T207	09.003.T009	09.001.T207	09.006.T008
09.001.T007	09.004.T005	09.002.T010	
09.002.T010	09.005.T006	09.001.T007	
09.006.T008	09.006.T008RE	09.003.T009	
		09.004.T005	
		09.005.T006	
		09.006.T008RE	

B) ~~09.001.T~~ Field or rinse blank contamination

Unknown

C) Water blank contamination

See above

D) Trip blank contamination

Unknown

DATA ASSESSMENT:

3. SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure mass resolution, identification of compounds, and to some degree, the 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 and for semi-volatiles is decafluorotriphenyl- phosphine.

If the mass calibration is in error, all associated data will be classified as unusable, "R".

No Action

7-10-92

DATA ASSESSMENT:

4. CALIBRATION:

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance in the beginning of an experimental sequence. The continuing calibration checks document 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 Target Compound List (TCL) must be ≥ 0.05 either in the initial or continuing calibration. A value < 0.05 indicates a serious detection and quantitation problem. Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be qualified as rejected, "R".

* Int Cal 5.6.92 - 2-butanone.
* Cont Cal AK5I02 VBLKLVK091-MB1, 09.001.T207, 17.004.B311, 09.001.T317
2-Butanone
* Int Cal 5.8.92 - No Action
* Cont Cal W051804 - No Action.
* Cont Cal W051904 - No Action.

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

* Init. Cal. 5.6.92. No Action
* Cont Cal AK5I02, — VBLKLVK091-MB1, 09.001.T207, 17.004.B311, 09.001.T307
J (>25%-<50%) Chloromethane, Acetone, 2-Butanone.
* Init Cal 5.8.92 - No Action
* Cont Cal W051804 - VBLKLVW094-MB1, 09.001.T007, 09.002.T010,
09.006.T008, 09.001.T007MS, 09.001.T007MSD
J (>25%-<50%) Bromomethane, Chloroethane, ~~2-Butanone~~ 4-Methyl-2pentanone
UJ (>50%-<90%) 2-Butanone
* Cont Cal W051904 VBLKLVW095-MB1, 09.003.T009, 09.004.T005,
09.005.T006, 09.006.T008 RE
J (>25%-<90%) 2-Hexanone, 4-Methyl-2-Pentanone

DATA ASSESSMENT:

6. SURROGATES:

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

No Action

7-10-92

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 calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated 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 to be qualified as estimated, "J", and all non-detects as "UJ" or "R" if there is a severe loss of sensitivity.

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.

09.001.T007MS, 09.001.T007MSD, 09.006.T008 –

All ISTD areas low

09.006.T008RE – DFB and CBZ areas low (J/UJ)

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

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

B) PESTICIDE FRACTION:

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

No Action

7-10-92

DATA ASSESSMENT:

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

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

No Actions

7-10-92

ATTACHMENT 1
SOP NO. HW-6

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DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Acceptable

12. CONTRACT PROBLEMS Ø NON-COMPLIANCE:

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.

09.006.T008RE instead of 09.006.T008

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

DPO: [ ] ACTION [ ] FYI Region_____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 92052341 LABORATORY R.F. Weston

SDG NO. — DATA USER R.F. Weston

SOW 3/90 Rev REVIEW COMPLETION DATE 7·10·92

NO. OF SAMPLES 3 WATER 6 SOIL _____ OTHER

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

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

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

DPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: Region II / CLP
Date: 7-10-92
Project: Cattaraugus Naval Weapons Station
Case #: 92052341
Reviewer's Initials: SJM
Lab Name: R.F. Weston
Number of Samples: 9

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)	0	0	3	0	0	0	9	3/315
PEST (20)								
PCB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)	0	0	3	14	0	20	9	37/315
PEST (20)								
PCB (7)								
TCDD (1)								

000046

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 92052341

LAB: Lit Weston

SITE: Coltsmuch

	YES	NO	N/A
1.0 Data Completeness and Deliverables			
1.1 Have any missing deliverables been received and added to the data package.	[ ]	X	
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?	[ ]	X	
2.0 Cover Letter/Case Narrative			
2.1 Is the Narrative or Cover Letter present?	[X]		
2.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?	[X]		

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?	X	
BNA data?		X
Pesticide/PCB data?		X

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? [X] ___ ___

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? ___ [X] ___

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

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

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

2.0 Holding Times

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

If unpreserved, aqueous aromatic volatiles must be analyzed within 7 days of collection and non-aromatic volatiles must be analyzed within 14 days. If preserved with hydrochloric acid and stored at 4°C, then both aromatic and non-aromatic volatiles must be analyzed within 14 days. If uncertain about preservation, contact the sampler to determine whether the samples were preserved.

A ten-day holding time for soil samples is recommended.

Table of Holding Time Violations

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

7.p.42

ACTION: If 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.

	YES	NO	N/A
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. The reviewer may determine that non-detect data are unusable ("R").			

3.0 Surrogate Recovery (Form II)

3.1 Are the VOA Surrogate Recovery Summaries (Form II) present for each of the following matrices:			
a. Low Water	[X]	___	___
b. Med Water	[ ]	___	X
c. Low Soil	[X]	___	___
d. Med Soil	[ ]	___	X
3.2 Are all the VOA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
a. Low Water	[X]	___	___
b. Med Water	[ ]	___	X
c. Low Soil	[X]	___	___
d. Med Soil	[ ]	___	X

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

3.3 Were outliers marked correctly with an asterisk?	[ ]	___	X

ACTION: Circle all outliers in red.

3.4 Was one or more VOA surrogate recovery outside of contract specifications for any sample or method blank?	___	[ ]	X
If yes, were samples reanalyzed?	[ ]	___	X
Were method blanks reanalyzed?	[ ]	___	X

ACTION: If surrogate recoveries are > 10% but all do not meet SOW specifications:

1. Flag all positive results as estimated ("J").
2. Flag all non-detects as estimated detection limits ("UJ").

	YES	NO	N/A
If any surrogate has a recovery of <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 have method blank surrogate 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 under "Conclusions".	___	[X]	___
.0 Matrix Spikes (Form III)			
4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?	[X]	___	___
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water	[ ]	___	X
b. Med Water	[ ]	___	X
c. Low Soil	[X]	___	___
d. Med Soil	[ ]	___	X
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
N/A out of 10	0 out of 10

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

Water	Soils
N/A out of 5	0 out of 5

ACTION: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for the MS/MSD analysis. Use professional judgement in applying this criterion to other samples in the package.

	YES	NO	N/A
5.0 Blanks (Form IV)			
5.1 Is the Method Blank Summary (Form IV) present?	[X]		
5.2 Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, med water, low soil, medium soil), whichever is more frequent?	[X]		
5.3 Has a VOA instrument blank been analyzed at least once every twelve hours for each GC/MS system used?	[X]		
ACTION: If any method blank data are missing, call lab for explanation / resubmittal. If not available, reject all associated positive data ("R").			
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?	[X]		
ACTION: Use professional judgement to determine the effect on the data.			
6.0 Contamination			
NOTE: "Water blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.			
6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for VOAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.	X	[ ]	
6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?		[ ]	X
ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)			

Not ID

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

YES NO N/A

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

	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & >10x blank value
Methylene chloride Acetone Toluene 2-butanone	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	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'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed

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? [ ] ___ X

Not ID

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 Tuning and Mass Calibration (Form V)

7.1 Are the GC/MS Tuning and Mass Calibration Forms (Form V) present for Bromofluorobenzene (BFB)? [X] ___ ___

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

7.3 Has a tuning performance compound been analyzed for every twelve hours of sample analysis per instrument? [X] ___ ___

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

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

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

Euro 7-10-92

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

	YES	NO	N/A
7.4 Have the ion abundance criteria been met for each instrument used?	[X]		
ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).			
ACTION: If tuning calibration is in error, flag all associated sample data as unusable ("R"). However, if expanded ion criteria are met (See 1988 Functional Guidelines), the data reviewer may accept data with appropriate qualifiers.			
7.5 Are there any transcription / calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)		[X]	
7.6 Have the appropriate number of significant figures (two) been reported? (Check at least two values, but if errors are found check more values.)	[X]		
ACTION: If large errors exist, call lab for explanation / resubmittal, make necessary corrections and note errors under "Conclusions".			
7.7 Are the spectra of the mass calibration compound acceptable?	[X]		
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	[X]		
b. Matrix spikes and matrix spike duplicates	[X]		
c. Blanks	[X]		

	YES	NO	N/A
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	[X]		
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[X]		
c. Blanks	[X]		
ACTION: If any data are missing, take action specified in 3.2 above.			
8.3 Are the response factors shown in the Quant Report?	[X]	X	
8.4 Is chromatographic performance acceptable with respect to:			
Baseline stability	[X]		
Resolution	[X]		
Peak shape	[X]		
Full-scale graph (attenuation)	[X]		
Other:_____	[ ]		X
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?	[X]		
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?	[X]		
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?	[X]		
8.8 Do sample and standard relative ion intensities agree within 20%?	[X]		
ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected, flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (at the calculated detection limit).			

7.10.92 Question

	YES	NO	N/A
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 "J" qualifier?	[X]		
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	[X]		
b. Blanks	[X]		
ACTION: If any TIC data are missing, take action specified in 3.2 above.			
ACTION: Add "J" qualifier if missing and "N" qualifier to all identified TIC compounds on Form I, Part B.			
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)?		[X]	
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?	[X]		
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	[X]		
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.			
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?		[X]	
10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[X]		

	YES	NO	N/A
ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			
ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.			
11.0 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?	[X]	___	___
ACTION: If any calibration standard data are missing, take action specified in 3.2 above.			
12.0 GC/MS Initial Calibration (Form VI)			
12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction?	[X]	___	___
ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.			
12.2 Are response factors stable for volatiles over the concentration range of the calibration (RSD <30%)?	[ ]	X	___
ACTION: Circle all outliers in red.			
ACTION: When RSD >30%, non-detects may be qualified using professional judgement. Flag all positive results "J". When RSD >90%, flag all non-detects as unusable ("R"). (Region II policy.)			
12.3 Do any compounds have an average RRF < 0.05?	X	[ ]	___
ACTION: Circle all outliers in red.			
ACTION: If any volatile compound has an average RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").			

	YES	NO	N/A
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.)	___	[X]	___

ACTION: Circle errors in red.

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

13.0 GC/MS Continuing Calibration (Form VII)

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

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

_____

_____

_____

2-10-92

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 continuing calibration standard compounds have a RRF < 0.05?	X	[___]	___

ACTION: Circle all outliers in red.

ACTION: If any volatile compound has a RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

13.4 Do any compounds have a % difference between initial and continuing calibration RRF > 25%?	X	[___]	___

ACTION: Circle all outliers in red and qualify associated sample data as outlined in the table below:

YES NO N/A

% DIFFERENCE

25-50	50-90	>90
'J' positive results, no action for non detects	'J' positive results, 'UJ' non detects	'J' positive results, "R" non detects

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.) ___ [X] ___

ACTION: Circle errors in red.

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

4.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits for each continuing calibration? [___] X ___

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
09.001.T007MS	All ISTDs	low		
09.001.T007MSD	↓	↓		
09.006.T008	↓	↓		
09.006.T008RE	DFB	141083	148229	592916
	CBZ	146472	156338	625352

(Attach additional sheets if necessary.)

ACTION: 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. If extremely low area counts are reported, 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? [X] ___ ___

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

	YES	NO	N/A
0 Field Duplicates			
15.1 Were any field duplicates submitted for VOA analysis?	[ ]		X

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference. Not D.

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.

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

Data Validation Report

July 10, 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 May 08 and 15, 1992 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were six (6) soil samples with one (1) MS/MSD and one (1) water sample with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9205L341**.

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, March, 1990 requirements and good professional judgement.

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

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**SVOA**
09-001-T007	9205L341-011	SOIL	X
09-001-T007MS	9205L341-011	SOIL	X
09-001-T007MSD	9205L341-011	SOIL	X
09-002-T010	9205L341-012	SOIL	X
09-003-T009	9205L341-013	SOIL	X
09-004-T005	9205L341-014	SOIL	X
09-004-T005RE	9205L341-014	SOIL	X
09-005-T006	9205L341-015	SOIL	X
09-006-T008	9205L341-016	SOIL	X
09-001-T207	9205L341-020	WATER	X
09-001-T207MS	9205L341-020	WATER	X
09-001-T207MSD	9205L341-020	WATER	X

Individual fractions were reviewed as follows:

			Primary	Secondary
SVOA	-	Semivolatile Analysis	Gene Watson	Chris Scarpellino

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 the Region II SOP No. HW-6, March, 1990 Revision. All comments made within this report should be considered when examining the analytical results (Form I's).

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 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

Five (5) of the six (6) initial calibrations that was analyzed by the laboratory for these samples was acceptable for all compound %RSDs and RRFs.

Specific findings:

1. For the samples listed below, the initial calibration analyzed on 05/26/92 contained the following compounds with %RSDs greater than 30%. Qualify all positive results for these compounds as estimated (J).

09-001-T207	pentachloro- phenol di-n-octylphthalate

Continuing Calibrations

The seven (7) continuing calibration that were analyzed with the sample in this data package were acceptable for all TCL RRFs.

Continuing Calibrations (continued)

Specific findings:

2. For the samples listed below, the continuing calibration, L060504, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

09-001-T007	N-nitroso-
09-002-T010	diphenylamine
09-004-T005	butylbenzylphthalate
09-005-T006	bis(2-ethylhexyl)phthalate
09-006-T008	terphenyl-d_{14} (surrogate)

3. For the samples listed below, the continuing calibration, L060803, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

09-003-T009	4-nitrophenol
	2,4-dinitrophenol

4. For the samples listed below, the continuing calibration, S052102, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

09-001-T207MS	2,4-dinitro-
09-001-T207MSD	phenol

5. For the samples listed below, the continuing calibration, M062203, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

09-004-T005RE	nitrobenzene
	pyrene
	butylbenzylphthalate
	bis(2-ethylhexyl)phthalate
	di-n-octylphthalate
	2,4,6-tribromophenol (surrogate)

Internal Standards

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

Specific findings:

6. For the samples listed below, qualify all positive and non detect results associated with the non compliant internal standards as estimated (J/UJ).

Sample ID	Non Compliant ISTD
09-004-T005	Chrysene-d_{12}
09-004-T005RE	All ISTDs

Method Blanks

One (1) of the two (2) extraction blank that was analyzed reported contamination for bis(2-ethylhexyl)phthalate below 1 μg/L. The result should be reported at the CRQL as a non detect. The method blank TIC 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:

7. All TICs that are flagged "JB" are rejected due to blank contamination.

Surrogates

Two (2) surrogate recoveries were outside the QA/QC limits. However, the SOW and the Functional Guidelines allow one surrogate recovery per fraction (acid and base/neutral) to fall outside the QA/QC limits, as long as the recovery is greater than 10%. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Many of the MS/MSDs recoveries and %RPDs were above the advisory limits. No qualifications are required for the non compliant recoveries and RPDs.

Compound Identification/Quantitation

Specific findings:

8. All results reported by the laboratory that are less than 1μg/L, will be rejected and the CRQL will be reported per the SOW.

9. Reject the results for 09-004-T005RE in favor of the original analysis, 09-004-T005 which contained only one (1) non compliant ISTD.

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
09-001-T207	pentachloro-phenol di-n-octylphthalate	+	J	1
09-001-T007 09-002-T010 09-004-T005 09-005-T006 09-006-T008	N-nitroso-diphenylamine butylbenzylphthalate bis(2-ethylhexyl)phthalate terphenyl-d_{14} (surrogate)	+	J	2
09-003-T009	4-nitrophenol 2,4-dinitrophenol	+	J	3
09-001-T207MS 09-001-T207MSD	2,4-dinitro-phenol	+	J	4
09-004-T005RE	nitrobenzene pyrene butylbenzylphthalate bis(2-ethylhexyl)phthalate di-n-octylphthalate 2,4,6-tribromophenol (surrogate)	+	J	5
09-004-T005	All compounds associated with the internal standard Chrysene-d_{12}	+/-	J/UJ	6

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

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE ID	DL	QL	SPECIFIC FINDINGS
All samples	TICs	+JB	R	7
All samples	All analytes	< 1J	CRQL	8
09-004-T005RE	All analytes	+/-	R	9

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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011

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

Lab File ID: L060507

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(2-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	390	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011

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

Lab File ID: L060507

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	23	J
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octyl phthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-001-T007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011

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

Lab File ID: L060507

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 6.5

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.62	300	~~JAB~~
2.	ALDOL CONDENSATE	6.63	100	~~JAB~~
3.	UNKNOWN	19.12	100	~~JB~~

R7

FORM 1 SV-TIC 3/90

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-002-T010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-012

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

Lab File ID: L060510

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 25 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	440	U
111-44-4	bis(2-Chloroethyl)ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	2,2'-oxybis(2-Chloropropane)	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	440	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-002-T010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9205L341-012

Sample wt/vol: 30.5 (g/mL) G Lab File ID: L060510

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: 25 decanted: (Y/N)__ Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/05/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	440	U
86-74-8	Carbazole	440	U
84-74-2	Di-n-butylphthalate	37	J
206-44-0	Fluoranthene	440	U
129-00-0	Pyrene	440	U
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)phthalate	35	J
117-84-0	Di-n-octyl phthalate	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenz(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-002-T010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-012

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

Lab File ID: L060510

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 25 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.8

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.63	400	~~JAB~~
2.	ALDOL CONDENSATE	6.63	100	~~JAB~~
3.	UNKNOWN	19.12	400	~~JB~~
4.	UNKNOWN	23.02	300	J
5.	UNKNOWN	25.32	100	J

FORM 1 SV-TIC 3/90

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-003-T009

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-013

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

Lab File ID: L060804

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 25 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/08/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	440	U
111-44-4	bis(2-Cnloroethyl)ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	2,2'-oxybis(2-Chloropropane)	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	440	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-003-T009

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-013

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

Lab File ID: L060804

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 25 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/08/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	440	U
86-74-8	Carbazole	440	U
84-74-2	Di-n-butylphthalate	25	J
206-44-0	Fluoranthene	440	U
129-00-0	Pyrene	440	U
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)phthalate	440	U
117-84-0	Di-n-octyl phthalate	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenz(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-003-T009

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-013

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

Lab File ID: L060804

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 25 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/08/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.7

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.65	400	~~JAB~~
2.	ALDOL CONDENSATE	6.65	100	~~JAB~~
3.	UNKNOWN	19.08	200	~~JB~~

KZ

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-004-T005

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L060511

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

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

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-004-T005

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L060511

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	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	410	U
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	28	J
206-44-0	Fluoranthene	410	U
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	410	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	410	U
117-84-0	Di-n-octyl phthalate	410	U
205-99-2	Benzo(b)fluoranthene	410	U
207-08-9	Benzo(k)fluoranthene	410	U
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-004-T005

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L060511

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.9

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.63	400	~~JAB~~
2.	ALDOL CONDENSATE	6.65	100	~~JAB~~
3.	UNKNOWN	19.13	300	~~JB~~
4.	ADIPATE	22.40	100	J
5.	UNKNOWN	23.08	200	J
6.	UNKNOWN	25.38	80	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-004-T005RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014 RE

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

Lab File ID: M062212

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/22/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

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

R9

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-004-T005RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014 RE

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

Lab File ID: M062212

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/22/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	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	410	U
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-butylphthalate	46	J
206-44-0	Fluoranthene	410	U
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)anthracene	410	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	27	J
117-84-0	Di-n-octyl phthalate	410	U
205-99-2	Benzo(b)fluoranthene	410	U
207-08-9	Benzo(k)fluoranthene	410	U
50-32-8	Benzo(a)pyrene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
53-70-3	Dibenz(a,h)anthracene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U

R9

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-005-T006

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-015

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

Lab File ID: L060512

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

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	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-005-T006

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-015

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

Lab File ID: L060512

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	25	J
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	26	J J 2
117-84-0	Di-n-octyl phthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-005-T006

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-015

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

Lab File ID: L060512

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.8

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.62	~~300~~	~~JAB~~
2.	ALDOL CONDENSATE	6.63	~~100~~	~~JAB~~
3.	UNKNOWN	19.10	~~200~~	~~JB~~
4.	UNKNOWN	22.97	200	J
5.	UNKNOWN	25.28	80	J
6.	ALKANE	26.23	100	J
7.	ALKANE	28.92	200	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-006-T008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-016

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

Lab File ID: L060513

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

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

CLIENT SAMPLE NO.

09-006-T008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9205L341-016

Sample wt/vol: 30.5 (g/mL) G Lab File ID: L060513

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: 21 decanted: (Y/N)__ Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 06/05/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	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
84-74-2	Di-n-butylphthalate	21	J
206-44-0	Fluoranthene	420	U
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 J 2
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

CLIENT SAMPLE NO.

09-006-T008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-016

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

Lab File ID: L060513

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/05/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 5.9

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	5.62	300	~~JAB~~
2.	ALDOL CONDENSATE	6.63	100	~~JAB~~
3.	UNKNOWN	19.12	200	~~JB~~
4.	UNKNOWN	22.98	200	J
5.	UNKNOWN	25.32	100	J

R7

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L341-020

Sample wt/vol: 990 (g/mL) ML Lab File ID: S052611

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/26/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

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

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L341-020

Sample wt/vol: 990 (g/mL) ML Lab File ID: S052611

Level: (low/med) LOW Date Received: 05/16/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/26/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10 ~~0.8~~	~~JB~~ U 8
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	U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

09-001-T207

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020

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

Lab File ID: S052611

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/26/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 0

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

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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MS

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

Lab File ID: L061112

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol		SP
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol		SP
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene		SP
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(2-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine		SP
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene		SP
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol		SP
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	970	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	970	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	970	U
83-32-9	Acenaphthene		SP

SP: SPIKE COMPOUND

FORM 1 SV-1

3/90

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MS

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

Lab File ID: L061112

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	970	U
100-02-7	4-Nitrophenol		SP
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene		SP
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	970	U
534-52-1	4,6-Dinitro-2-methylphenol	970	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol		SP
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene		SP
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octyl phthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

SP: SPIKE COMPOUND

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MSD

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L061113

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol		SP
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol		SP
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene		SP
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(2-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine		SP
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene		SP
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol		SP
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene		SP

SP: SPIKE COMPOUND

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MSD

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L061113

Level: (low/med) LOW

Date Received: 05/16/92

% Moisture: 15 decanted: (Y/N)__

Date Extracted: 05/19/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 06/11/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol		SP
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene		SP
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol		SP
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene		SP
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	390	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octyl phthalate	390	U
205-99-2	Benzo(b)fluoranthene	390	U
207-08-9	Benzo(k)fluoranthene	390	U
50-32-8	Benzo(a)pyrene	390	U
193-39-5	Indeno(1,2,3-cd)pyrene	390	U
53-70-3	Dibenz(a,h)anthracene	390	U
191-24-2	Benzo(g,h,i)perylene	390	U

(1) - Cannot be separated from Diphenylamine

SP: SPIKE COMPOUND

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020 MS

Sample wt/vol: 490 (g/mL) ML

Lab File ID: S052111

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

SP: SPIKE COMPOUND

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020 MS

Sample wt/vol: 490 (g/mL) ML

Lab File ID: S052111

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

(1) - Cannot be separated from Diphenylamine

SP: SPIKE COMPOUND

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020 MSD

Sample wt/vol: 480 (g/mL) ML

Lab File ID: S052112

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

SP: SPIKE COMPOUND

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020 MSD

Sample wt/vol: 480 (g/mL) ML

Lab File ID: S052112

Level: (low/med) LOW

Date Received: 05/16/92

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

Date Extracted: 05/18/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

(1) - Cannot be separated from Diphenylamine

SP: SPIKE COMPOUND

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 9205L341 SDG No. — LABORATORY [illegible] SITE Cottonwood

DATA ASSESSMENT:

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

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

Reviewer's Signature: [signature] Date: 7/10/19 92

Verified By: _____ Date: __/____/19__

DATA ASSESSMENT:

1. HOLDING TIME:

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

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

No Action

7-10-92

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

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

A) Method blank contamination bis(2-EH)phthalate reported in blank 92LE0713-MB1
TICs in both blanks.

09-001-T207 - Di-n-butylphthalate - less than 1ug/L.
CRQL - less than 1ug/L.

B) Field or rinse blank contamination

Unknown

C) Water blank contamination

See above

D) Trip blank contamination

Unknown

DATA ASSESSMENT:

3. SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure mass resolution, identification of compounds, and to some degree, the 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 and for semi-volatiles is decafluorotriphenyl- phosphine.

If the mass calibration is in error, all associated data will be classified as unusable, "R".

No Action

7.10.92

DATA ASSESSMENT:

4. CALIBRATION:

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance in the beginning of an experimental sequence. The continuing calibration checks document 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 Target Compound List (TCL) must be $\geq$ 0.05 either in the initial or continuing calibration. A value < 0.05 indicates a serious detection and quantitation problem. Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be qualified as rejected, "R".

The Action

SMW
7-10-92

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

*Init Cal 6.4.92 - No Action.

*Cont Cal L060504 - 09.001.T007, 09.002.T010, 09.004.T005, 09.005.T006, 09.006.T008

J(>25%-<50%) N-Nitrosodiphenylamine, butylbenzylphthalate, bis(2-EH)phthalate, Terphenyl-d14

*Cont Cal L060803 - 09.003.T009

J(>25%-<50%) 2,4-Dinitrophenol, 4-Nitrophenol

*Cont Cal L060902 - SBLKCE0723.MB1

J(>25%-<50%) Hexachlorocyclopentadiene, 2,4-Dinitrophenol, 4-Nitrophenol, 4,6-Dinitro-2-Methylphenol.

*Initial Cal: 6.11.92 - No Action

*Cont Cal L061110 09.001.T007MS, MSD - No Action

*Initial Cal 5.6.92 - No Action

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

* Cont Cal S052102 SBLKLE0713-MB1BS, 09-001-T207MS, MSD
J (>25%-<50%) 2,4-Dinitrophenol,
* Int. Cal 5-26-92 09-001-T207
J (>30%-<90%) Pentachlorophenol, Di-n-octylphthalate.
* Int. Cal 6-2-92. No Action
* Cont Cal J060302 SBLKLE0713-MB1
J (>25%-<50%) 2,4-Dinitrophenol, Indeno (1,2,3 cd) pyrene, benzo (g,hi) perylene.
* Int. Cal 6-19-92 No Action
* Cont Cal M062203 09-004-T005RE
J (>25%-<50%) Nitrobenzene, Pyrene, butylbenzylphthalate, bis (2-eh) phthalate, Di-n-octylphthalate, 2,4,6-Tribromophenol

DATA ASSESSMENT:

6. SURROGATES:

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

No Action -

2 surr out - >10% -

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 calibration standard. The retention time of the internal standard must not vary more than ±30 seconds from the associated 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 to be qualified as estimated, "J", and all non-detects as "UJ" or "R" if there is a severe loss of sensitivity.

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.

09.004.T005 - Chrysene-d12 low (J/UJ)

09.004.T005RE - All ISTDs low.

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

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

B) PESTICIDE FRACTION:

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

No Action

7.10.92

DATA ASSESSMENT:

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

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

Many RPD's out - (all for soil)

No Action Required.

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Acceptable.

12. CONTRACT PROBLEMS__0__NON-COMPLIANCE:

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.

09.004.T005 instead of 09.004.T005RE

DPO: [ ] ACTION [ ] FYI Region_____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9205L341 LABORATORY R.F. Weston

SDG NO. — DATA USER R.F. Weston

SOW 3/90 Low REVIEW COMPLETION DATE 7.10.92

NO. OF SAMPLES 1 WATER 6 SOIL _____ OTHER

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

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

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

DPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

Attachment 3

REJECTION SUMMARY FORM

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

SOP NO: HW-6
Date: February 1989

Type of Review: Region II / CLP
Date: 7-10-92
Project: Colts Neck
Case #: 9205L341
Reviewer's Initials: EMW
Lab Name: R.F. Weston
Number of Samples: 7

000054

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)	0	0	0	0	0	0	7	0 / 105
B/N (50)	0	0	0	0	0	0	7	0 / 350
VOA (35)								
PEST (20)								
PCB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)	0	0	0	0	0	0	7	0 / 105
B/N (50)	0	0	3	0	0	5	7	8 / 350
VOA (35)								
PEST (20)								
PCB (7)								
TCDD (1)								

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 92052341

LAB: R.F Weston

SITE: Coltsneck Naval Weapons Station

1.0 Data Completeness and Deliverables	YES	NO	N/A
1.1 Have any missing deliverables been received and added to the data package.	[ ]	X	
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?	[ ]	X	
2.0 Cover Letter/Case Narrative			
2.1 Is the Narrative or Cover Letter present?	[X]		
2.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?	[X]		

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?		X
BNA data?	X	
Pesticide/PCB data?		X

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? [X] ___ ___

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? ___ [X] ___

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

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

2.0 Holding Times

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

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

Table of Holding Time Violations

Sample	Sample Matrix	Date Sampled	(See Traffic Report) Date Lab Received	Date Extracted	Date Analyzed

7.10.92

ACTION: If 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.

	YES	NO	N/A
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. The reviewer may determine that non-detect data are unusable ("R").			

.0 Surrogate Recovery (Form II)

3.1 Are the BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:			
a. Low Water	[X]		
b. Med Water	[ ]		X
c. Low Soil	[X]		
d. Med Soil	[ ]		X
3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
a. Low Water	[X]		
b. Med Water	[ ]		X
c. Low Soil	[X]		
d. Med Soil	[ ]		X
ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.			
3.3 Were outliers marked correctly with an asterisk?	[X]		
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?		[X]	
If yes, were samples reanalyzed?	[ ]		X
Were method blanks reanalyzed?	[ ]		X

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").

	YES	NO	N/A
If any base-neutral or acid surrogate has a recovery of <10% : 1. Flag all positive results for that fraction (i.e. all acid or base-neutral compounds) "J". 2. Flag all non-detects for that fraction "R".			
Professional judgement should be used to qualify data that have method blank surrogate 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?	___	[X]	___
ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			
.0 Matrix Spikes (Form III)			
4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?	[X]	___	___
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water	[X]	___	___
b. Med Water	[ ]	___	X
c. Low Soil	[X]	___	___
d. Med Soil	[ ]	___	X
ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.			

4.3 How many BNA spike recoveries are outside QC limits?

Water	Soils
1 out of 22	3 out of 22

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

Water	Soils
Ø out of 11	1 out of 11

ACTION: If MS and MSD both have less than 10% recovery for an analyte, negative results for that analyte should be rejected, and positive results should be flagged "J". The above applies only to the sample used for MS/MSD analysis. Use professional judgement in applying this criterion to other samples.

	YES	NO	N/A
5.0 Blanks (Form IV)			
5.1 Is the Method Blank Summary (Form IV) present?	[X]	___	___
5.2 Frequency of Analysis: for the analysis of BNA TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, med water, low soil, medium soil), whichever is more frequent?	[X]	___	___
5.3 Has a BNA ~~instrument~~ Method blank been analyzed for each GS/MS system used.	[X]	___	___

ACTION: If any method blank data are missing, call lab for explanation/resubmittal. If not available, reject all associated positive data ("R").

5.4 Chromatography: review the blank raw data - chromatograms (RICs), quant reports or data system printouts and spectra.

	YES	NO	N/A
Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?	[X]	___	___

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

6.0 Contamination

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

	YES	NO	N/A
6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.	X	[ ]	___
6.2 Do any field/rinse blanks have positive BNA results (TCL and/or TIC)?	___	[ ]	X

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

Unknown

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

YES NO N/A

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

	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & >10x blank value
Common Phthalate Esters	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	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'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed

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? [ ] ___ X

Unknown

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.

.0 GC/MS Tuning and Mass Calibration (Form V)

7.1 Are the GC/MS Tuning and Mass Calibration Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? [X] ___ ___

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

7.3 Has a tuning performance compound been analyzed for every twelve hours of sample analysis per instrument? [X] ___ ___

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

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

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

7-10-92

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

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

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

ACTION: If tuning calibration is in error, flag all associated sample data as unusable ("R"). However, if expanded ion criteria are met (See 1988 Functional Guidelines), the data reviewer may accept data with appropriate qualifiers.

	YES	NO	N/A
7.5 Are there any transcription / calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)		[X]	
7.6 Have the appropriate number of significant figures (two) been reported? (Check at least two values, but if errors are found check more values.)	[X]		

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

	YES	NO	N/A
7.7 Are the spectra of the mass calibration compound acceptable?	[X]		

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

8.0 Target Compound List (TCL) Analytes

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

	YES	NO	N/A
a. Samples and/or fractions as appropriate	[X]		
b. Matrix spikes and matrix spike duplicates	[X]		
c. Blanks	[X]		

	YES	NO	N/A
8.2 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	[X]		
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	[X]		
c. Blanks	[X]		
ACTION: If any data are missing, take action specified in 3.2 above.			
8.3 Are the response factors shown in the Quant Report?	[ ]	X	
8.4 Is chromatographic performance acceptable with respect to:	Question		
Baseline stability	[X]		
Resolution	[X]		
Peak shape	[X]		
Full-scale graph (attenuation)	[X]		
Other: _____	[ ]		X
ACTION: Use professional judgement to determine the acceptability of the data.			
8.5 Are the lab-generated standard mass spectra of the identified BNA compounds present for each sample?	[X]		
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?	[X]		
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?	[X]		
8.8 Do sample and standard relative ion intensities agree within 20%?	[X]		
ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected, flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (at the calculated detection limit).			

	YES	NO	N/A
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 "J" qualifier?	[X]		
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	[X]		
b. Blanks	[X]		
ACTION: If any TIC data are missing, take action specified in 3.2 above.			
ACTION: Add "J" qualifier if missing and "N" qualifier to all identified TIC compounds on Form I, Part B.			
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)?		[X]	
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?	[X]		
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	[X]		
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.			
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?		[X]	
10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[X]		

	YES	NO	N/A
ACTION: If errors are large, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			
ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with data from the analysis of diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including any in the summary package.			
11.0 Standards Data (GC/MS)			
11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (Quant. Reports) present for initial and continuing calibration?	[X]	___	___
ACTION: If any calibration standard data are missing, take action specified in 3.2 above.			
12.0 GC/MS Initial Calibration (Form VI)			
12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction?	[X]	___	___
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 (RSD <30%)?	[ ]	X	___
ACTION: Circle all outliers in red.			
ACTION: When RSD >30%, non-detects may be qualified using professional judgement. Flag all positive results "J". When RSD >90%, flag all non-detects as unusable ("R"). (Region II policy.)			
12.3 Do any compounds have a RRF < 0.05?	___	[X]	___
ACTION: Circle all outliers in red.			
ACTION: If any BNA compound has an average RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").			

	YES	NO	N/A
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.)	___	[X]	___

ACTION: Circle errors in red.

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

13.0 GC/MS Continuing Calibration (Form VII)

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

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

_____

_____

_____

7-10-92

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 continuing calibration standard compounds have a RRF < 0.05?	___	[X]	___

ACTION: Circle all outliers in red.

ACTION: If any BNA compound has a RRF < 0.05, flag positive results for that compound as estimated ("J"), and flag non-detects for that compound as unusable ("R").

13.4 Do any compounds have a % difference between initial and continuing calibration RRF > 25%?	[X]	[ ]	___

ACTION: Circle all outliers in red and qualify associated sample data as outlined in the table below:

YES NO N/A

% DIFFERENCE

25-50	50-90	>90
'J' positive results, no action for non detects	'J' positive results, 'UJ' non detects	'J' positive results, "R" non detects

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.) [ ] [X] [ ]

ACTION: Circle errors in red.

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

4.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits for each continuing calibration? [ ] [X] [ ]

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
09.004.T005	Chrysene-d12	43347	44321	177284
09.004-T005RE	All ISTDS	LOW.		

(Attach additional sheets if necessary.)

ACTION: 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. If extremely low area counts are reported, 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? [X] [ ] [ ]

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

	YES	NO	N/A
15.0 Field Duplicates			
15.1 Were any field duplicates submitted for BNA analysis?	[ ]		X

Unknown

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.

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

Data Validation Report

Pesticide/Aroclors

July 10, 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 May 15, 1992 at the **NWS Earle - ColtsNeck, NJ** site. There was one (1) water sample with no MS/MSD and six (6) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratory - Lionville in this analytical batch, **RFW Lot# 9205L341.**

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, Muti-Media, Multi-Concentration (OLM01.0) and Low Concentration Water (OLC01.0), Draft December 1990, Revised June 1991; Region II SOP No. HW-6, March 1990; 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**
09-001-T007	9205L341-011	SOIL	X
09-001-T007MS	9205L341-011MS	SOIL	X
09-001-T007MSD	9205L341-011MSD	SOIL	X
09-002-T010	9205L341-012	SOIL	X
09-003-T009	9205L341-013	SOIL	X
09-004-T005	9205L341-014	SOIL	X
09-005-T006	9205L341-015	SOIL	X
09-006-T008	9205L341-016	SOIL	X
09-001-T207	9205L341-020	WATER	X

MS - Matrix Spike MSD - Matrix Spike Duplicate

Individual fractions are as follows:

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

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

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

One (1) water sample with no MS/MSD and six (6) soil samples with one (1) MS/MSD were included in this analytical data package, **RFW Lot # 9205L341.** 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, and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. 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

The water sample surrogate recoveries for DCB were below the QC limits.

Specific Finding

1. All reported non-detect results in the water sample, 09-001-T207, are qualified as estimated, "UJ" due to low surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate

All % Recoveries and RPDs for the soil MS/MSD were within QC limits. The water BS/BSD had one low recovery and one high RPD. No qualifications were required.

Analyte Identification/Quantitation

Some 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.

3. The reported positive result for the analyte is rejected and 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.

4. 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.

5. The reported positive result for the analyte is qualified as quantitatively estimated, "J", due to differences in the column quantitations.

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
09-001-T207	All	U	UJ	1
All	All "P"	+	+U/UJ	2
All	All "P"	+	NJ	3
All	All "P"	+	J	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.

09-001-T007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011

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

Lab File ID: 06029235.42

% Moisture: 13. decanted: (Y/N)_

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 500.0 (uL) DS 6-11-92

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 6.1

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	1.9	U
319-85-7	Beta-BHC	1.9	U
319-86-8	Delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	3.8	U
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421934	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	77	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

DS 6-11-92

FORM 1 PEST 03/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MS

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

Lab File ID: 06029235.29

% Moisture: 13. decanted: (Y/N)

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) DS 6-11-92

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 6.1

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	1.9	U
319-85-7	Beta-BHC	1.9	U
319-86-8	Delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	62.0	%
76-44-8	Heptachlor	64.0	%
309-00-2	Aldrin	46.0	%
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	64.0	%
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	66.0	%
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	66.0	%
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421934	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	77	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

DS 6-11-92

%: SPIKE COMPOUND

FORM 1 PEST

03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T007MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-011 MSD

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

Lab File ID: 06029235.30

% Moisture: 13. decanted: (Y/N)_

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) DS 6-11-92

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 6.1

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	1.9	U
319-85-7	Beta-BHC	1.9	U
319-86-8	Delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	62.0	%
76-44-8	Heptachlor	62.0	%
309-00-2	Aldrin	54.0	%
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	66.0	%
72-55-9	4,4'-DDE	3.8	U
72-20-8	Endrin	69.0	%
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	70.0	%
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421934	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	1.9	U
8001-35-2	Toxaphene	190	U
12674-11-2	Aroclor-1016	38	U
11104-28-2	Aroclor-1221	77	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	38	U

DS 6-11-92

%: SPIKE COMPOUND

FORM 1 PEST

03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-002-T010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-012

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

Lab File ID: 06029235.31

% Moisture: 23. decanted: (Y/N)_

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) DS 6-11-92

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 4.9

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.2	U
319-85-7	Beta-BHC	2.2	U
319-86-8	Delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.3	U
72-55-9	4,4'-DDE	4.3	U
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	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
7421934	Endrin aldehyde	4.3	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	43	U
11104-28-2	Aroclor-1221	87	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

DS 6-11-92

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-003-T009

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-013

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

Lab File ID: 06029235.32

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

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) DS 6-11-92

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 4.5

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.2	U
319-85-7	Beta-BHC	2.2	U
319-86-8	Delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.3	U
72-55-9	4,4'-DDE	4.3	U
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	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
7421934	Endrin aldehyde	4.3	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	43	U
11104-28-2	Aroclor-1221	87	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

DS 6-11-92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-004-T005

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-014

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

Lab File ID: 06029235.33

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

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) DS

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 4.6

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
319-84-6	Alpha-BHC	2.1	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	DS
76-44-8	Heptachlor	2.1	U	
309-00-2	Aldrin	2.1	U	
1024-57-3	Heptachlor epoxide	2.1	U	6-11-92
959-98-8	Endosulfan I	2.1	U	
60-57-1	Dieldrin	4.1	U	
72-55-9	4,4'-DDE	0.41	~~JP~~	NJ 3
72-20-8	Endrin	4.1	U	
33213-65-9	Endosulfan II	4.1	U	
72-54-8	4,4'-DDD	4.1	U	
1031-07-8	Endosulfan sulfate	4.1	U	
50-29-3	4,4'-DDT	0.82	~~JP~~	J 4
72-43-5	Methoxychlor	93		
53494-70-5	Endrin ketone	4.1	U	
7421934	Endrin aldehyde	4.1	U	
5103-71-9	alpha-Chlordane	2.1	U	
5103-74-2	gamma-Chlordane	2.1	U	
8001-35-2	Toxaphene	210	U	
12674-11-2	Aroclor-1016	41	U	
11104-28-2	Aroclor-1221	82	U	
11141-16-5	Aroclor-1232	41	U	
53469-21-9	Aroclor-1242	41	U	
12672-29-6	Aroclor-1248	41	U	
11097-69-1	Aroclor-1254	41	U	
11096-82-5	Aroclor-1260	41	U	

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-005-T006

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-015

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

Lab File ID: 06049235.20

% Moisture: 18. decanted: (Y/N)_

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: 10000.00 (uL)

Date Analyzed: 06/08/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 4.6

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.0	U
319-85-7	Beta-BHC	2.0	U
319-86-8	Delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'-DDE	1.2	J
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	0.41	J
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	0.41	~~JP~~
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.1	U
7421934	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	41	U
11104-28-2	Aroclor-1221	81	U
11141-16-5	Aroclor-1232	41	U
53469-21-9	Aroclor-1242	41	U
12672-29-6	Aroclor-1248	41	U
11097-69-1	Aroclor-1254	41	U
11096-82-5	Aroclor-1260	41	U

6-12-92

J 4

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-006-T008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L341-016

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

Lab File ID: 06029235.35

% Moisture: 21. decanted: (Y/N)_

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/18/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) DS 6-11-92

Date Analyzed: 06/03/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-11-92 pH: 4.1

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.1	U
319-85-7	Beta-BHC	2.1	U
319-86-8	Delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.2	U
72-55-9	4,4'-DDE	4.2	U
72-20-8	Endrin	4.2	U
33213-65-9	Endosulfan II	4.2	U
72-54-8	4,4'-DDD	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
50-29-3	4,4'-DDT	4.2	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.2	U
7421934	Endrin aldehyde	4.2	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	42	U
11104-28-2	Aroclor-1221	84	U
11141-16-5	Aroclor-1232	42	U
53469-21-9	Aroclor-1242	42	U
12672-29-6	Aroclor-1248	42	U
11097-69-1	Aroclor-1254	42	U
11096-82-5	Aroclor-1260	42	U

DS 6-11-92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

09-001-T207

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L341-020

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

Lab File ID: 06029235.36

% Moisture: decanted: (Y/N)_

Date Received: 05/16/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 05/18/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 06/03/92

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	0.055	U
319-85-7	Beta-BHC	0.055	U
319-86-8	Delta-BHC	0.055	U
58-89-9	gamma-BHC (Lindane)	0.055	U
76-44-8	Heptachlor	0.055	U
309-00-2	Aldrin	0.055	U
1024-57-3	Heptachlor epoxide	0.055	U
959-98-8	Endosulfan I	0.055	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.55	U
53494-70-5	Endrin ketone	0.11	U
7421934	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.055	U
5103-74-2	gamma-Chlordane	0.055	U
8001-35-2	Toxaphene	5.5	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

uJ 1

6-11-92

FORM 1 PEST 03/90

PACKAGE COMPLETENESS AND DELIVERABLES

RFV Lot #
CASE NUMBER: 92052341

LAB: Roy F. Weston - Lionville

SITE: Naval Weapons Station / Colts Neck, NJ

	YES	NO	N/A
1.0 Data Completeness and Deliverables			
1.1 Have any missing deliverables been received and added to the data package.	[ ]		✓
ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.			
1.2 Was SMO CCS checklist included with package?	[ ]		✓
2.0 Cover Letter/Case Narrative			
2.1 Is the Narrative or Cover Letter present?	[✓]		
2.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?	[✓]		

3.0 Data Validation Checklist

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

Does this package contain:

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

ACTION: Complete corresponding parts of checklist.

PART C: PESTICIDE/PCB ANALYSES

	YES	NO	N/A
1.0 Traffic Reports and Laboratory Narrative			
1.1 Are the Traffic Report Forms present for all samples?	[✓]		
ACTION: If no, contact lab for replacement of missing or illegible copies.			
1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?		[✓]	
ACTION: Use professional judgement to evaluate the effect on the quality of the data.			
ACTION: If any sample analyzed as a soil contains more than 50% water, all data should be flagged as estimated (J).			
2.0 Holding Times			
2.1 Have any PEST/PCB holding times, determined from date of collection to date of extraction, been exceeded?		[✓]	
Samples for PEST/PCB analysis, both soils and waters, must be extracted within seven days of the date of collection. Extracts must be analyzed within 40 days of the date of extraction.			
3.0 Surrogate Recovery (Form II)			
3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:			
a. Low Water	[✓]		
b. Med Water	[ ]		✓
c. Low Soil	[✓]		
d. Med Soil	[ ]		✓
3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:			
a. Low Water	[✓]		
b. Med Water	[ ]		✓
c. Low Soil	[✓]		
d. Med Soil	[ ]		✓

	YES	NO	N/A
ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.			
3.3 Were outliers marked correctly with an asterisk?	[✓]	___	___
ACTION: Circle all outliers in red. Water sample 09-001-T207 - Qualify non-detects (all)			
3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?	✓	[___]	___
ACTION: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J". If recovery is zero, flag positive results "J" and non-detects "R". If recovery for the blank is zero, flag non-detects for all associated samples "R". If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewers professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).			
3.5 Are there any transcription/calculation errors between raw data and Form II?	___	[✓]	___
ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			

4.0 Matrix Spikes (Form III)

	YES	NO	N/A
4.1 Is the Matrix Spike Duplicate/Recovery Form (Form III) present?	[✓]	___	___
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water — BS/BSD	[✓]	___	___
b. Med Water	[___]	___	___
c. Low Soil	[✓]	___	___
d. Med Soil	[___]	___	___
ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.			

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

Water	Soils
1 out of 12	Ø out of 12

	YES	NO	N/A

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

Water	Soils
1 out of 6	Ø out of 6

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

5.0 Blanks (Form IV)

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

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

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

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

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

water: Aldrin on DB608 + Endrin Ald. / B-BHC & Methoxychlor on DB1701

6.0 Contamination

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

Soil: Endrin Ald. + Aldrin on DB608 / Not much on DB1701 / Instr. Blanks clean

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

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

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

YES NO N/A

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

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

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

6.3 Are there field/rinse/equipment blanks associated with every sample? [✓] ? ___ ___

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

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) column present: Calibration & Stds. as per 3/90 SOW

a. Evaluation Standard Mix A [✓] ___ ___

b. Evaluation Standard Mix B [✓] ___ ___

c. Evaluation Standard Mix C [✓] ___ ___

d. Individual Standard Mix A [✓] ___ ___

. Individual Standard Mix B [✓] ___ ___

f. Multi-component Pesticides Toxaphene & Chlordane [✓] ___ ___

g. Aroclors 1016/1260 [✓] ___ ___

h. Aroclors 1221, 1232, 1242, 1248, and 1254 [✓] ___ ___

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

	YES	NO	N/A
7.2 Is Form VIII Pest-1 present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?	[✓]	___	___
ACTION: If no, take action specified in 3.2 above.			
7.3 Are there any transcription/calculation errors between raw data and Form VIII?	___	[✓]	___
ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			
7.4 Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?	___	[✓]	___
- for Endrin? see sample calculation	___	[✓]	___
or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?	___	[___]	✓

ACTION:

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

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

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

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

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

Endrin Breakdown

PEM 1184 6/4/92 0418 DB1701

$$\frac{(0.5\,\mu L\ inj.)\left[\frac{(0.006)\ ng/\mu L}{EA\ \left(\frac{851}{280550}\right)} + \frac{(0.004)\ ng/\mu L}{EK\ \left(\frac{967}{529050}\right)}\right] = 0.003 + 0.002 = 0.005}{} \times 100 = 0.025$$

$\frac{0.005}{0.025} \times 100 = 20.0$

0.0.25

19.44% Breakdown

rounding - OK

Lab Value = 20.0

	YES	NO	N/A
7.5 Is the linearity check RSD of all four calibration factors <10% for the quantitation column? 3/90 < 20% Both columns	[✓]	___	___
ACTION: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.			
7.6 Is the % difference between the EVAL A and each analysis (quantitation and confirmation) DBC retention time within QC limits (2% for packed column, 0.3% for capillary [I.D. < 0.32 mm], 1% for megabore [0.32 < I.D. < 2 mm]) ?	[✓]	___	___
ACTION: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgement to determine the reliability of the analysis and flag results "R", if appropriate.			
7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW). per 3/90 SOW	[✓]	___	___
ACTION: If no, use professional judgement to determine the severity of the effect on the data and accept or reject it accordingly. Generally, the effect is negligible unless the sequence was grossly altered or the calibration was also out of limits.			

3.0 Pesticide/PCB Standards Summary

	YES	NO	N/A
8.1 Is Form IX present and complete for each GC column and 72 hr sequence of analyses? Forms 6D + 6F	[✓]	___	___
ACTION: If no, take action specified in 3.2 above.			
8.2 Are there any transcription/calculation errors between raw data and Form IX?	___	[✓]	___
ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			
8.3 Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?	[ ]	___	✓
ACTION: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R". RES std. ok			
8.4 Do all standard retention times fall within the windows established for the first IND A and IND B analyses?	[✓]	___	___

	YES	NO	N/A
ACTION: Beginning with the samples following the last in control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and, DBC is visible non-detects are valid. If peaks are present and cannot be identified through "pattern recognition" or a consistent shift in standard retention times, flag all affected compound results "R".			
8.5 Are the continuing calibration standard calibration factors within 15% (for quantitation column) or 20% (for confirmation column) of the initial (at beginning of 72 hr sequence) calibration factors? <25% as per 3/90 SOW	[✓]		
ACTION: If no, flag all associated positive results "J". Use professional judgement to determine whether or not to flag non-detects.			
9.0 Pesticide/PCB Identification			
9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	[✓]		
ACTION: If no, take action specified in 3.2 above.			
9.2 Are there any transcription errors between raw data and Form X?		[✓]	
ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			
9.3 Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?	[✓]		
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?	[ ]		[✓]
ACTION: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e. base on RRT to DBC).			
9.4 Check chromatograms for false negatives, especially for the multiple peak components toxaphene and PCB's. Were there any false negatives?		[✓]	
ACTION: If appropriate PCB standards were not analyzed, or if the lab performed no confirmation analysis, flag the appropriate data with an "R".			

	YES	NO	N/A
10.0 Compound Quantitation and Reported Detection Limits			
10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Were any errors found?	___	[✓]	___

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

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	✓	[___]	___

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

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

11.0 Chromatogram Quality			
11.1 Were baselines stable?	[✓]	___	___
11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen? minor	___	[✓]	___
11.3 Were early eluting peaks (for early eluting analytes) resolved to baseline?	[✓]	___	___

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

	YES	NO	N/A
12.0 Field Duplicates			
12.1 Were any field duplicates submitted for PEST/PCB analysis?	[___]	✓	___

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

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

ATTACHMENT 1
SOP NO. HW-6

PAGE __OF__

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. RFW Lot# 9205L-341 SDG No. 09-001-T007 LABORATORY Roy F. Weston Lionville SITE NUS-Earle Colts Neck, NJ

DATA ASSESSMENT:

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

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

Reviewer's Signature: [signature] Date: 7/9/1992

Verified By: Paul B. Hinkly Date: 7/10/1992

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 will be qualified as estimated, "J". The non-detects sample quantitation limits will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

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

None

All within holding times

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

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

A) Method blank contamination

None

B) Field or rinse blank contamination

NA

C) Water blank contamination

None

D) Trip blank contamination

NA

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

All QC limits for 3/90 SOW were met for initial + continuing calibration.

DATA ASSESSMENT:

6. SURROGATES:

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

All water DCB Recoveries were below QC limits —

Sample 09-001-T207
All non-detect results (all) are qualified as estimated "UJ"

All soils w/in QC limits

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

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

B) PESTICIDE FRACTION:

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

All RTs w/in RTWs

No GC/MS conf. required

DATA ASSESSMENT:

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

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

Water: 1 out of ~~6~~ 12 %Rec + 1 out of ~~12~~ 6 RPDs
(BS/BSD)

CDS 7/9/92 CDS 7/9/92

No impact

Soil: All MS/MSD Rec + RPDs w/in QC limits

All %Rec for BS w/in QC

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

good

12. CONTRACT PROBLEMS____NON-COMPLIANCE:

None

13. This package contains No 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:

Good!

DPO [ ] ACTION [ ] FYI Region _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9205L341 LABORATORY Roy F. Weston - Lionville

SDG NO. 09-001-T007 DATA USER "

SOW: 3/90 REVIEW COMPLETION DATE 7/9/92

NO. OF SAMPLES 1 WATER 6 SOIL _____ OTHER

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

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

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

DPO ACTION ITEMS: None

AREAS OF CONCERN: None

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: CLP 3/90 SOW / NEESA D Date: 7/9/92 Case #: 92054341

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

Reviewer's Initials: CDS Marilyn D. Scampellico Number of Samples: 1 water + 6 soil (7)

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	0	0	0	0	0	0		
PCB (7)	0	0	0	0	0	0	7	0/140
TCDD (1)							7	0/49

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	1 x 20	0	0	0	0	0		
PCB (7)	1 x 7	0	0	0	0	0	7	20/140
TCDD (1)							7	7/49

000038

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

July 9, 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. Four (4) water samples and one (1) Matrix Spike and Duplicate pair and thirteen (13) soil samples and one (1) Matrix Spike and Duplicate pair were analyzed by the Roy F. Weston Lionville Laboratory.

Navy No.	RFW No.	Navy No.	RFW No.
17-003-B005	920534102	09-002-T009	920534113
17-003-B008	920534103	09-004-T005	920534114
17-005-B008	920534105	09-005-T006	920534115
17-005-B010	920534106	09-006-T008	920534116
17-006-B006	920534107	17-005-B208	920534117
17-006-B008	920534108	17-005-B208D	920534117D
17-007-B010	920534110	17-005-B208S	920534117S
09-001-T007	920534111	17-002-B212	920534119
09-001-T007D	920534111D	09-001-T207	920534120
09-001-T007S	920534111S		
09-002-T010	920534112		

Heartland ESI has reviewed the data for the samples listed above TAL Metals using Region II Data Validation Protocol, February 1990 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# 9205341**, the analysis of four (4) field water samples and one (1) matrix spike and duplicate pair and thirteen (13) field soil samples and one (1) matrix spike and duplicate pair. Overall, the inorganic data quality was fair. All USEPA CLP 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 Region II Protocol.

Calibration

1. The CRDL Standards for Chromium and Lead for waters were 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 Standards for Silver for waters and soils and Zinc for waters were above the upper control limit. All positive results are qualified as estimated, "J".

Preparation and Field Blanks

No deficiencies in this section.

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

3. The Matrix Spike recoveries for soils for Antimony, Arsenic, Manganese, Selenium and Thallium 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 soils for Lead was above the upper control limit. All positive results are qualified as estimated, "J".

Duplicate

5. The Duplicate Analysis for Manganese for soils was outside the control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

LCS

No deficiencies in this section.

Serial Dilution

6. The Serial dilutions for Vanadium and Zinc were outside the control limit. All positive results are qualified as estimated,"J".

MSA

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

Analyte	Samples
Selenium	3-B008, 5-B008, 6-B006, 7-B010, 1-T007, 2-T010, 4-T005, 5-T006 and 6-T008.
Thallium	3-B005, 5-B008, 4-T005 and 5-T006.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE	DL	QL	SPECIFIC FINDING
All water samples	Cr and Pb	+/U	J/UJ	1
All water samples All soil samples	Ag and Zn Ag	+	J	2
All soil samples	Sb, As, Mn, Se and Tl.	+/U	J/UJ	3
All soil samples	Pb	+	J	4
All soil samples	Mn	+/U	J/UJ	5
All soil samples	Mg and V	+	J	6
3-B008, 5-B008, 6-B006, 7-B010, 1-T007, 2-T010, 4-T005, 5-T006 and 6-T008.	Se	+/U	J/UJ	7
3-B005, 5-B008, 4-T005 and 5-T006.	Tl			

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

QL - denotes data validation qualifier

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

3-B005

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534102

Level (low/med): LOW Date Received: 5/16/92

% Solids: 81.7

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5310.00			P	
7440-36-0	Antimony	8.67	U	N	P	UJ3
7440-38-2	Arsenic	13.90		N	F	J3
7440-39-3	Barium	14.90	B		P	
7440-41-7	Beryllium	.82	B		P	
7440-43-9	Cadmium	.96	U		P	
7440-70-2	Calcium	382.00	B		P	
7440-47-3	Chromium	19.40			P	
7440-48-4	Cobalt	5.10	B		P	
7440-50-8	Copper	9.20			P	
7439-89-6	Iron	20400.00			P	
7439-92-1	Lead	28.10		N	F	J4
7439-95-4	Magnesium	536.00	B		P	J6
7439-96-5	Manganese	85.90		N*	P	J3,5
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.34	U		P	
7440-09-7	Potassium	1130.00	B		P	
7782-49-2	Selenium	.49	U	N	F	UJ3
7440-22-4	Silver	1.93	U		P	
7440-23-5	Sodium	379.00	B		P	
7440-28-0	Thallium	.49	U	NW	F	UJ3,7
7440-62-2	Vanadium	24.70			P	J6
7440-66-6	Zinc	41.50			P	
	Cyanide	1.22	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

3-B008

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534103

Level (low/med): LOW Date Received: 5/16/92

% Solids: 72.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4480.00			P	
7440-36-0	Antimony	9.89	U	N	P	UJ3
7440-38-2	Arsenic	7.40		N	F	J3
7440-39-3	Barium	10.10	B		P	
7440-41-7	Beryllium	.71	B		P	
7440-43-9	Cadmium	1.10	U		P	
7440-70-2	Calcium	173.00	B		P	
7440-47-3	Chromium	36.10			P	
7440-48-4	Cobalt	2.40	B		P	
7440-50-8	Copper	15.60			P	
7439-89-6	Iron	21000.00			P	
7439-92-1	Lead	14.60		N	F	J4
7439-95-4	Magnesium	208.00	B		P	J6
7439-96-5	Manganese	19.90		N*	P	J3, 5
7439-97-6	Mercury	.07	U		CV	
7440-02-0	Nickel	4.94	U		P	
7440-09-7	Potassium	724.00	B		P	
7782-49-2	Selenium	.55	U	NW	F	UJ3, 7
7440-22-4	Silver	2.20	U		P	
7440-23-5	Sodium	121.00	B		P	
7440-28-0	Thallium	.55	U	N	F	UJ3
7440-62-2	Vanadium	72.50			P	J6
7440-66-6	Zinc	6.80			P	
	Cyanide	1.39	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

5-B008

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534105

Level (low/med): LOW Date Received: 5/16/92

% Solids: 91.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2400.00			P	
7440-36-0	Antimony	7.67	U	N	P	UJ3
7440-38-2	Arsenic	2.30		N	F	J3
7440-39-3	Barium	13.60	B		P	
7440-41-7	Beryllium	.22	U		P	
7440-43-9	Cadmium	.87	U		P	
7440-70-2	Calcium	17600.00			P	
7440-47-3	Chromium	15.30			P	
7440-48-4	Cobalt	3.70	B		P	
7440-50-8	Copper	19.10			P	
7439-89-6	Iron	14200.00			P	
7439-92-1	Lead	63.60		N	F	J4
7439-95-4	Magnesium	1900.00			P	J6
7439-96-5	Manganese	112.00		N*	P	J3,5
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	11.80			P	
7440-09-7	Potassium	236.00	B		P	
7782-49-2	Selenium	.44	U	NW	F	UJ3,7
7440-22-4	Silver	1.70	U		P	
7440-23-5	Sodium	1300.00			P	
7440-28-0	Thallium	.44	U	NW	F	UJ3,7
7440-62-2	Vanadium	21.40			P	J6
7440-66-6	Zinc	41.50			P	
	Cyanide	1.09	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

5-B010

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534106

Level (low/med): LOW Date Received: 5/16/92

% Solids: 85.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3200.00			P	
7440-36-0	Antimony	8.39	U	N	P	UJ3
7440-38-2	Arsenic	3.40		N	F	J3
7440-39-3	Barium	6.90	B		P	
7440-41-7	Beryllium	.29	B		P	
7440-43-9	Cadmium	.91	U		P	
7440-70-2	Calcium	560.00	B		P	
7440-47-3	Chromium	6.30			P	
7440-48-4	Cobalt	1.59	U		P	
7440-50-8	Copper	2.40	B		P	
7439-89-6	Iron	8380.00			P	
7439-92-1	Lead	6.00		NS	F	J4
7439-95-4	Magnesium	127.00	B		P	J6
7439-96-5	Manganese	22.80		N*	P	J3,5
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.08	U		P	
7440-09-7	Potassium	203.00	U		P	
7782-49-2	Selenium	.46	U	N	F	UJ3
7440-22-4	Silver	2.30	B		P	J2
7440-23-5	Sodium	479.00	B		P	
7440-28-0	Thallium	.46	U	N	F	UJ3
7440-62-2	Vanadium	17.90			P	J6
7440-66-6	Zinc	4.40	B		P	
	Cyanide	1.17	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

6-B006

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534107

Level (low/med): LOW Date Received: 5/16/92

% Solids: 78.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4300.00			P	
7440-36-0	Antimony	9.13	U	N	P	UJ3
7440-38-2	Arsenic	3.30		N	F	J3
7440-39-3	Barium	7.60	B		P	
7440-41-7	Beryllium	.31	B		P	
7440-43-9	Cadmium	.97	U		P	
7440-70-2	Calcium	173.00	B		P	
7440-47-3	Chromium	17.50			P	
7440-48-4	Cobalt	1.70	B		P	
7440-50-8	Copper	4.50	B		P	
7439-89-6	Iron	18200.00			P	
7439-92-1	Lead	9.80		N	F	J4
7439-95-4	Magnesium	178.00	B		P	J6
7439-96-5	Manganese	16.40		N*	P	J3,5
7439-97-6	Mercury	1.22			CV	
7440-02-0	Nickel	4.36	U		P	
7440-09-7	Potassium	375.00	B		P	
7782-49-2	Selenium	.48	U	NW	F	UJ3,7
7440-22-4	Silver	2.03	U		P	
7440-23-5	Sodium	53.70	B		P	
7440-28-0	Thallium	.48	U	N	F	UJ3
7440-62-2	Vanadium	44.20			P	J6
7440-66-6	Zinc	5.40			P	
	Cyanide	1.27	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

6-B008

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534108

Level (low/med): LOW Date Received: 5/16/92

% Solids: 83.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1040.00			P	
7440-36-0	Antimony	8.61	U	N	P	UJ3
7440-38-2	Arsenic	11.70		N	F	J3
7440-39-3	Barium	5.90	B		P	
7440-41-7	Beryllium	.24	U		P	
7440-43-9	Cadmium	.94	U		P	
7440-70-2	Calcium	98.50	B		P	
7440-47-3	Chromium	9.90			P	
7440-48-4	Cobalt	1.64	U		P	
7440-50-8	Copper	1.80	B		P	
7439-89-6	Iron	5500.00			P	
7439-92-1	Lead	5.60		N	F	J4
7439-95-4	Magnesium	112.00	B		P	J6
7439-96-5	Manganese	8.80		N*	P	J3, J
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.23	U		P	
7440-09-7	Potassium	211.00	U		P	
7782-49-2	Selenium	.45	U	N	F	UJ3
7440-22-4	Silver	1.91	U		P	
7440-23-5	Sodium	65.30	B		P	
7440-28-0	Thallium	.45	U	N	F	UJ3
7440-62-2	Vanadium	23.40			P	J6
7440-66-6	Zinc	3.00	B		P	
	Cyanide	1.20	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-B010

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534110

Level (low/med): LOW Date Received: 5/16/92

% Solids: 72.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7310.00			P	
7440-36-0	Antimony	9.66	U	N	P	UJ3
7440-38-2	Arsenic	3.20		N	F	J3
7440-39-3	Barium	7.10	B		P	
7440-41-7	Beryllium	.66	B		P	
7440-43-9	Cadmium	1.10	U		P	
7440-70-2	Calcium	796.00	B		P	
7440-47-3	Chromium	22.80			P	
7440-48-4	Cobalt	6.50	B		P	
7440-50-8	Copper	12.70			P	
7439-89-6	Iron	103000.00			P	
7439-92-1	Lead	15.10		N	F	J4
7439-95-4	Magnesium	285.00	B		P	J6
7439-96-5	Manganese	127.00		N*	P	J3,5
7439-97-6	Mercury	.07	U		CV	
7440-02-0	Nickel	4.93	U		P	
7440-09-7	Potassium	371.00	B		P	
7782-49-2	Selenium	.54	U	NW	F	UJ3,7
7440-22-4	Silver	4.60			P	J2
7440-23-5	Sodium	73.00	B		P	
7440-28-0	Thallium	.54	U	N	F	UJ3
7440-62-2	Vanadium	15.70			P	J6
7440-66-6	Zinc	24.90			P	
	Cyanide	1.38	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

1-T007

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534111

Level (low/med): LOW Date Received: 5/16/92

% Solids: 85.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2320.00			P	
7440-36-0	Antimony	8.41	U	N	P	UJ3
7440-38-2	Arsenic	6.00		N	F	J3
7440-39-3	Barium	5.00	B		P	
7440-41-7	Beryllium	.30	B		P	
7440-43-9	Cadmium	.93	U		P	
7440-70-2	Calcium	110.00	B		P	
7440-47-3	Chromium	10.90			P	
7440-48-4	Cobalt	2.10	B		P	
7440-50-8	Copper	3.00	B		P	
7439-89-6	Iron	8580.00			P	
7439-92-1	Lead	5.50		N	F	J4
7439-95-4	Magnesium	147.00	B		P	J6
7439-96-5	Manganese	49.20		N*	P	J3,J
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.20	U		P	
7440-09-7	Potassium	209.00	U		P	
7782-49-2	Selenium	.47	U	NW	F	UJ3,7
7440-22-4	Silver	1.87	U		P	
7440-23-5	Sodium	42.60	B		P	
7440-28-0	Thallium	.47	U	N	F	UJ3
7440-62-2	Vanadium	23.20			P	J6
7440-66-6	Zinc	5.30			P	
	Cyanide	1.17	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

2-T010

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534112

Level (low/med): LOW Date Received: 5/16/92

% Solids: 76.6

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9070.00			P	
7440-36-0	Antimony	9.04	U	N	P	UJ3
7440-38-2	Arsenic	7.90		N	F	J3
7440-39-3	Barium	13.50	B		P	
7440-41-7	Beryllium	1.20	B		P	
7440-43-9	Cadmium	1.03	U		P	
7440-70-2	Calcium	242.00	B		P	
7440-47-3	Chromium	16.20			P	
7440-48-4	Cobalt	4.30	B		P	
7440-50-8	Copper	4.10	B		P	
7439-89-6	Iron	36300.00			P	
7439-92-1	Lead	5.60		N	F	J4
7439-95-4	Magnesium	1210.00	B		P	J6
7439-96-5	Manganese	112.00		*N	P	J3,5
7439-97-6	Mercury	.07	U		CV	
7440-02-0	Nickel	4.65	U		P	
7440-09-7	Potassium	1840.00			P	
7782-49-2	Selenium	.51	U	NW	F	UJ3,7
7440-22-4	Silver	2.70			P	J2
7440-23-5	Sodium	52.80	B		P	
7440-28-0	Thallium	.51	U	N	F	UJ3
7440-62-2	Vanadium	5.70	B		P	J6
7440-66-6	Zinc	39.80			P	
	Cyanide	1.31	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

3-T009

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534113

Level (low/med): LOW Date Received: 5/16/92

% Solids: 79.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6090.00			P	
7440-36-0	Antimony	8.87	U	N	P	UJ3
7440-38-2	Arsenic	13.20		N	F	J3
7440-39-3	Barium	7.70	B		P	
7440-41-7	Beryllium	.52	B		P	
7440-43-9	Cadmium	.99	U		P	
7440-70-2	Calcium	141.00	B		P	
7440-47-3	Chromium	21.00			P	
7440-48-4	Cobalt	2.30	B		P	
7440-50-8	Copper	4.10	B		P	
7439-89-6	Iron	22300.00			P	
7439-92-1	Lead	9.90		N	F	J4
7439-95-4	Magnesium	911.00	B		P	J6
7439-96-5	Manganese	24.40		*N	P	J3,J
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.45	U		P	
7440-09-7	Potassium	1970.00			P	
7782-49-2	Selenium	.48	U	N	F	UJ3
7440-22-4	Silver	1.97	U		P	
7440-23-5	Sodium	47.80	B		P	
7440-28-0	Thallium	.48	U	N	F	UJ3
7440-62-2	Vanadium	20.80			P	J6
7440-66-6	Zinc	17.50			P	
	Cyanide	1.27	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

4-T005

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534114

Level (low/med): LOW Date Received: 5/16/92

% Solids: 93.8

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	7350.00			P	
7440-36-0	Antimony	7.47	U	N	P	UJ3
7440-38-2	Arsenic	6.50		N	F	J3
7440-39-3	Barium	20.40	B		P	
7440-41-7	Beryllium	.72	B		P	
7440-43-9	Cadmium	.85	U		P	
7440-70-2	Calcium	750.00	B		P	
7440-47-3	Chromium	19.40			P	
7440-48-4	Cobalt	3.60	B		P	
7440-50-8	Copper	4.90	B		P	
7439-89-6	Iron	33300.00			P	
7439-92-1	Lead	12.70		N	F	J4
7439-95-4	Magnesium	1100.00			P	J6
7439-96-5	Manganese	104.00		*N	P	J3,5
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	3.82	U		P	
7440-09-7	Potassium	2040.00			P	
7782-49-2	Selenium	.41	U	NW	F	UJ3,7
7440-22-4	Silver	2.50			P	J2
7440-23-5	Sodium	50.50	B		P	
7440-28-0	Thallium	.41	U	NW	F	UJ3,7
7440-62-2	Vanadium	11.00			P	J6
7440-66-6	Zinc	60.30			P	
	Cyanide	1.07	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

5-T006

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534115

Level (low/med): LOW Date Received: 5/16/92

% Solids: 82.5

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	6280.00			P	
7440-36-0	Antimony	8.40	U	N	P	UJ3
7440-38-2	Arsenic	6.30		N	F	J3
7440-39-3	Barium	31.80	B		P	
7440-41-7	Beryllium	.58	B		P	
7440-43-9	Cadmium	.96	U		P	
7440-70-2	Calcium	799.00	B		P	
7440-47-3	Chromium	16.90			P	
7440-48-4	Cobalt	3.90	B		P	
7440-50-8	Copper	6.30			P	
7439-89-6	Iron	27600.00			P	
7439-92-1	Lead	17.40		N	F	J4
7439-95-4	Magnesium	893.00	B		P	J6
7439-96-5	Manganese	168.00		*N	P	J3,5
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.33	U		P	
7440-09-7	Potassium	1420.00			P	
7782-49-2	Selenium	.48	U	NW	F	UJ3,7
7440-22-4	Silver	2.20	B		P	J2
7440-23-5	Sodium	36.50	B		P	
7440-28-0	Thallium	.48	U	NW	F	UJ3,7
7440-62-2	Vanadium	11.70	B		P	J6
7440-66-6	Zinc	44.60			P	
	Cyanide	1.21	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

6-T008

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): SOIL Lab Sample ID: 920534116

Level (low/med): LOW Date Received: 5/16/92

% Solids: 79.1

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9220.00			P	
7440-36-0	Antimony	9.03	U	N	P	UJ3
7440-38-2	Arsenic	8.80		N	F	J3
7440-39-3	Barium	10.10	B		P	
7440-41-7	Beryllium	.93	B		P	
7440-43-9	Cadmium	1.01	U		P	
7440-70-2	Calcium	89.50	B		P	
7440-47-3	Chromium	25.80			P	
7440-48-4	Cobalt	4.00	B		P	
7440-50-8	Copper	3.10	B		P	
7439-89-6	Iron	26600.00			P	
7439-92-1	Lead	6.90		N	F	J4
7439-95-4	Magnesium	1520.00			P	J6
7439-96-5	Manganese	28.10		*N	P	J3,5
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.53	U		P	
7440-09-7	Potassium	4120.00			P	
7782-49-2	Selenium	.50	U	NW	F	UJ3,7
7440-22-4	Silver	2.01	U		P	
7440-23-5	Sodium	51.30	B		P	
7440-28-0	Thallium	.50	U	N	F	UJ3
7440-62-2	Vanadium	11.50	B		P	J6
7440-66-6	Zinc	60.10			P	
	Cyanide	1.57			C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

5-B208

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): WATER Lab Sample ID: 920534117

Level (low/med): LOW Date Received: 5/16/92

% 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		P	
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U		F	
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	UJ1
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	UJ1
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	10.00	U		C	

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.

1-K011

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): WATER Lab Sample ID: 920534118

Level (low/med): LOW Date Received: 5/16/92

% 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				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide	10.00	U		C

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.

2-B212

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): WATER Lab Sample ID: 920534119

Level (low/med): LOW Date Received: 5/16/92

% 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		P	
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U		F	
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	UJ1
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	UJ1
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	10.00	U		C	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN 03/90

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

1-T207

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix (soil/water): WATER Lab Sample ID: 920534120

Level (low/med): LOW Date Received: 5/16/92

% 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		P	
7440-36-0	Antimony	36.00	U		P	
7440-38-2	Arsenic	2.00	U		F	
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	UJ1
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	UJ1
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	10.00	U		C	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

1-T007S

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 85.6

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	75-125	64.1000		8.4060	U	116.70	54.9	N	P
Arsenic	75-125	9.9000		6.0000		9.30	41.0	N	F
Barium	75-125	410.3000		5.0000	B	467.00	87.9		P
Beryllium	75-125	10.1000		.3000	B	11.70	83.8		P
Cadmium	75-125	9.7000		.9340	U	11.70	82.8		P
Calcium									NR
Chromium	75-125	57.3000		10.9000		46.70	99.5		P
Cobalt	75-125	103.1000		2.1000	B	116.70	86.5		P
Copper	75-125	53.4000		3.0000	B	58.40	86.4		P
Iron									NR
Lead	75-125	12.4000		5.5000		4.70	148.5	N	F
Magnesium									NR
Manganese	75-125	118.8000		49.2000		116.70	59.6	N	P
Mercury	75-125	.5920		.0584	U	.58	102.1		CV
Nickel	75-125	103.6000		4.2030	U	116.70	88.8		P
Potassium									NR
Selenium	75-125	.6100	B	.4670	U	2.30	26.0	N	F
Silver	75-125	11.1000		1.8680	U	11.70	95.4		P
Sodium									NR
Thallium	75-125	8.3000		.4670	U	11.70	71.0	N	F
Vanadium	75-125	131.7000		23.2000		116.70	93.0		P
Zinc	75-125	111.0000		5.3000		116.70	90.5		P
Cyanide	75-125	5.5450		1.1680	U	5.84	94.9		C

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

5-B208S

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

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	1822.8000		46.0000	U	2000.00	91.1		P
Antimony	75-125	499.2000		36.0000	U	500.00	99.8		P
Arsenic	75-125	41.9000		2.0000	U	40.00	104.7		F
Barium	75-125	1859.8000		7.0000	U	2000.00	93.0		P
Beryllium	75-125	46.3000		1.0000	U	50.00	92.6		P
Cadmium	75-125	46.1000		4.0000	U	50.00	92.2		P
Calcium									NR
Chromium	75-125	183.7000		7.0000	U	200.00	91.9		P
Cobalt	75-125	473.2000		7.0000	U	500.00	94.6		P
Copper	75-125	233.8000		7.0000	U	250.00	93.5		P
Iron	75-125	913.8000		30.0000	U	1000.00	91.4		P
Lead	75-125	19.0000		2.0000	U	20.00	95.0		F
Magnesium									NR
Manganese	75-125	471.8000		2.0000	U	500.00	94.4		P
Mercury									NR
Nickel	75-125	462.5000		18.0000	U	500.00	92.5		P
Potassium									NR
Selenium	75-125	10.5000		2.0000	U	10.00	105.0		F
Silver	75-125	43.4000		8.0000	U	50.00	86.8		P
Sodium									NR
Thallium	75-125	44.5000		2.0000	U	50.00	89.0		F
Vanadium	75-125	485.6001		5.0000	U	500.00	97.1		P
Zinc	75-125	469.8999		6.0000	U	500.00	94.0		P
Cyanide	75-125	83.4760		20.0000	U	100.00	83.5		C

Comments:

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

1-T007A

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

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									NR
Antimony		48.30	B	36.00	U	120.0	40.2		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese		461.70		210.70		400.0	62.8		P
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.

1-T007D

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

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

% Solids for Sample: 85.6 % Solids for Duplicate: 85.6

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum		2321.2000		2209.7000		4.9		P
Antimony		8.4060	U	8.4060	U			P
Arsenic	2.3	6.0000		6.3000		4.9		F
Barium		5.0000	B	4.4000	B	12.3		P
Beryllium		.3000	B	.3000	B	0.0		P
Cadmium		.9340	U	.9340	U			P
Calcium		109.9000	B	87.3000	B	22.9		P
Chromium	2.3	10.9000		12.1000		10.8		P
Cobalt		2.1000	B	1.6345	U	200.0		P
Copper		3.0000	B	3.0000	B	.8		P
Iron		8579.5000		9105.8980		6.0		P
Lead		5.5000		6.1000		10.1		F
Magnesium		147.2000	B	124.5000	B	16.7		P
Manganese	3.5	49.2000		15.8000		102.8	*	P
Mercury		.0584	U	.0584	U			CV
Nickel		4.2030	U	4.2030	U			P
Potassium		209.2160	U	209.2160	U			P
Selenium		.4670	U	.4670	U			F
Silver		1.8680	U	1.8680	U			P
Sodium		42.6000	B	36.9000	B	14.4		P
Thallium		.4670	U	.4670	U			F
Vanadium	11.7	23.2000		22.5000		3.1		P
Zinc	4.7	5.3000		5.5000		2.2		P
Cyanide		5.1790	U	1.1680	U			C

FORM VI - IN

03/90

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

5-B208D

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP341

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		46.0000	U	46.0000	U			P
Antimony		36.0000	U	36.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		7.0000	U	7.0000	U			P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		4.0000	U	4.0000	U			P
Calcium		62.0000	U	62.0000	U			P
Chromium		7.0000	U	7.0000	U			P
Cobalt		7.0000	U	7.0000	U			P
Copper		7.0000	U	7.0000	U			P
Iron		30.0000	U	30.0000	U			P
Lead		2.0000	U	2.0000	U			F
Magnesium		69.0000	U	69.0000	U			P
Manganese		2.0000	U	2.0000	U			P
Mercury								NR
Nickel		18.0000	U	18.0000	U			P
Potassium		896.0000	U	896.0000	U			P
Selenium		2.0000	U	2.0000	U			F
Silver		8.0000	U	8.0000	U			P
Sodium		117.0000	U	117.0000	U			P
Thallium		2.0000	U	2.0000	U			F
Vanadium		5.0000	U	5.0000	U			P
Zinc		6.0000	U	6.0000	U			P
Cyanide		94.9000	U	20.0000	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 or on file?	[ ]		✓
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.			

	YES	NO	N/A
A.1.6 **Form I (Final Data)** - Are all Form I's present and complete?	[✓]		
ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
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 EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[✓]		
Are computation/transcription errors less than 10% of reported values?	[✓]		
Are all "less than IDL" values properly coded with "U"?	[✓]		
Was a brief physical description of samples given on Form I's?	[✓]		
Were the result qualifiers used correctly with final data?	[✓]		
ACTION: If no for any of the above, prepare Telephone Record Log, and contract laboratory for corrected data.			
Were any samples diluted beyond requirements of contract?		[✓]	
If yes, were dilutions noted on Form I's?	[✓]		
ACTION: If no, note under Contract-Problem/Non-Compliance of the"Data Assessment Narrative".			

A.1.7 **Holding Times** - (aqueous and soil samples)

(Examine sample traffic reports and digestion/distillation logs.)

Mercury analysis (28 days). . . . . exceeded?		[✓]	
Cyanide distillation (14 days). . . . . exceeded?		[✓]	

	YES	NO	N/A
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 Raw Data

		YES	NO	N/A
A.1.8.1	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 Digestion Log?	[✓]	___	___
A.1.8.2	Measurement read out record present? ICP	[✓]	___	___
	Flame AA	[___]	___	✓
	Furnace AA	[✓]	___	___
	Mercury	[✓]	___	___
	Cyanides	[✓]	___	___

	YES	NO	N/A
A.1.8.3 Are all raw data to support all sample analyses and QC operations present?	[✓]	__	__
Legible?	[✓]	__	__
Properly Labeled?	[✓]	__	__

ACTION: If no for any of the above, write Telephone Record Log and contact laboratory. Flag metal data as estimated if pH of sample is greater than 2. Flag cyanide data as estimated if pH sample is less than 12.

A.1.9 Data Validation and Verification

.1.9.1 Calibration

	YES	NO	N/A
A.1.9.1.1 Is record of at least 2 point calibration present for ICP analysis?	[✓]	__	__
Is record of 5 point calibration present for Hg analysis?	[✓]	__	__

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.1.9.1.2 Is record of 4 point calibration present for:			
Flame AA?	[__]	__	✓
Furnace AA?	[✓]	__	__
Cyanides?	[✓]	__	__

NOTE:
1. If less than 4 standards are measured in absorbance mode, then the remaining standards in concentration mode must be run immediately after calibration and be within ±10% of true value.
2. For all AA (except Hg) and Cyanide analyses, one calibration standard is at CRDL level. If not, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".

	YES	NO	N/A
ACTION: Flag associated data as estimated if standards are not within ±10% of true values (except CRDL calibration standard). Do not flag the data as estimated in linear range indicated by good recovery of standard.			
A.1.9.1.3 Is correlation *coefficient less than 0.995 for:			
Mercury Analysis?	___	[✓]	___
Cyanide Analysis?	___	[✓]	___
Atomic Absorption Analysis?	___	[✓]	___
ACTION: If yes, flag the associated data as estimated.			
A.1.9.2 Form II A (Initial and Continuing Calibration Verification)-			
A.1.9.2.1 Present and complete for every metal and cyanide?	[✓]	___	___
Present and complete for AA and ICP when both are used for same analyte?	[✓]	___	___
ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.			
A.1.9.2.2 Circle all values on data summary sheet that are outside contract windows. Are all calibration standards (initial and continuing) within control limits?			
Metals 90-110%	[✓]	___	___
Hg - 80-120%	[✓]	___	___
Cyanides 85-115%	[✓]	___	___

* The reviewer will calculate correlation coefficient.

	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.			
Was continuing calibration performed every 10 samples or every 2 hours?	[✓]	--	--
ACTION: If no, flag the excess samples (eleventh and up) data as estimated (J).			
Was ICV for cyanides distilled?	[__]	✓	--
ACTION: If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			

A.1.9.3 Form II B (CRDL Standards for AA and ICP) -

A.1.9.3.1 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.

Find the results of mid-range standard in the raw data.
**True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL.

		YES	NO	N/A
A.1.9.3.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and for every four hours of ICP run?	[✓]		
	ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".			
A.1.9.3.3	Circle all values on summary sheet that are outside 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 data within the affected ranges if the recovery of the standard is between 50-79%; flag only positive data if the recovery is between 121-150%; reject (red line) all data if the recovery is less than 50%; reject only positive data if the recovery is greater than 150%.			
A.1.9.4	Form III (Initial and Continuing Calibration Blanks)			
A.1.9.4.1	Present and complete?	[✓]		
	For both AA and ICP when both are used for same analyte?	[✓]		
	Was an initial calibration blank analyzed?	[✓]		
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (whichever is more frequent)?	[✓]		
	ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the contract-problems/ non-compliance section of the Data Assessment Narrative.			

		YES	NO	N/A
A.1.9.4.2	Circle all calibration blank values on Data Summary Sheet that are above CRDL (or 2 x IDL when IDL > CRDL). Are all calibration blanks (when IDL<CRDL) less than or equal to Contract Required Detection Limits (CRDL)?	[✓]		
	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) all positive data less than or equal to calibration blank values 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.			
A.1.9.5	FORM III (Preparation Blank) -			
	(Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.9.5.1	Was one prep. blank analyzed for: each 20 samples?	[✓]		
	each batch?	[✓]		
	each matrix type?	[✓]		
	both AA and ICP when both are used for same analyte?	[✓]		
	ACTION: If no for any of the above, flag as estimated (J) all 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).			
A.1.9.5.2	Is concentration of prep. blank greater than 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 value?		[✓]	

		YES	NO	N/A
	ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value found in the raw data.			
A.1.9.5.3	Do concentrations of prep. blank fall below two times IDL when IDL is greater than CRDL?	[✓]	__	__
	ACTION: If no, reject (red-line) all positive data that has a concentration less than 10 times the prep. blank value in the raw data.			
A.1.9.5.4	Is concentration of prep. blank below the negative CRDL?	__	[✓]	__
	ACTION: If yes, reject (red-line) all associated data that has a concentration less than 10xCRDL.			
A.1.9.6	Form IV (ICP Interference Check Sample)			
A.1.9.6.1	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 samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.8.6.2	Circle all values on Data Summary Sheet that are more than + 20% of true or established mean value. Are all Interference Check Sample results inside of control limits (+ 20%)?	[✓]	__	__
	If no, is concentration of Al, Ca, Fe, or Mg lower than in ICS?	[✓]	__	__
	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").			

		YES	NO	N/A
A.1.9.7	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.1.9.7.1	Present and complete for: each 20 samples?	[✓]	__	__
	each matrix type?	[✓]	__	__
	each conc. range (i.e. low, med., high)?	[✓]	__	__
	For both AA and ICP when both are used for same analyte?	[__]	__	✓
	ACTION: If no for any of the above, flag as estimated (J) all positive data less than four times spiking level 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.1.9.7.2	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.			
	NOTE: Matrix spike analysis should be performed on a field blank when it is the only aqueous sample in SDG.			
A.1.9.7.3	Circle all values on Data Summary Sheet 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?	[__]	✓	__
	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.			

	YES	NO	N/A
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.1.9.7.4 Aqueous

Are any spike recoveries:

	YES	NO	N/A
(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".

NOTE: If pre-digestion spike result is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, disregard spike recovery on Form V. Flag the associated data as estimated(J).

A.1.9.7.5 Soil/Sediment

Are any spike recoveries:

	YES	NO	N/A
(a) less than 10%?	__	[✓]	__
(b) between 10-74%?	✓	[__]	__
(c) between 126-200%?	✓	[__]	__
(d) greater than 200%?	__	[✓]	__

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".

		YES	NO	N/A
.1.9.8	Form VI (Lab Duplicates)			
..1.9.8.1	Present and complete for: each 20 samples?	[✓]		
	each matrix type?	[✓]		
	each concentration range (i.e. low, med., high)?	[✓]		
	both AA and ICP when both are used for same analyte?	[ ]		✓

ACTION: If no for any the above, flag as estimated (J) all 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 Hg/L on wet weight basis and calculate RPD or Difference for each analyte.

A.1.9.8.2	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.

NOTE: Duplicate analysis should be performed on a field blank when it is the only aqueous sample in SDG.

A.1.9.8.3	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".

NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.

* Substitute IDL for CRDL when IDL > CRDL.

		YES	NO	N/A
	2. If lab duplicate result is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria.			
A.1.9.8.4	Is any value for sample duplicate pair less than CRDL* and other value greater than or equal to 10 x *CRDL?	___	[✓]	___
	ACTION: If yes, flag the associated data as estimated (J).			
A.1.9.8.5	Aqueous Circle all values on Data Summary Sheet 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.			
A.1.9.8.6	Soil/Sediment Circle all values on Data Summary Sheet that are: RPD > 100%, or Difference > 2 x CRDL*			
	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?	___	[✓]	___

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* 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.1.9.9 **Field Duplicates**			
A.1.9.9.1 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.1.9.9.2 Is any value for sample duplicate pair less than *CRDL and other value greater than or equal to 10 x *CRDL?	___	[__]	✓
ACTION: If yes, flag the associated data as estimated.			
A.1.9.9.3 Aqueous			
Circle all values on 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.1.9.9.4 Soil/Sediment			
Circle all values on 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.1.9.10 Form VII (Laboratory Control Sample) (Note: LCS - not required for aqueous Hg and cyanide analyses.)

A.1.9.10.1 Was one LCS prepared and analyzed for: every 20 water samples?	[✓]	___	___
every 20' solid samples?	[✓]	___	___
both AA and ICP when both are used for 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 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.1.9.10.2 Aqueous LCS			
Circle all LCS values outside control limits (80 - 120%- except 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.1.9.10.3 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.1.9.11	**Form IX (ICP Serial Dilution)** -			
	NOTE: Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
A.1.9.11.1	Was Serial Dilution analysis performed for: each 20 samples?	[✓]	__	__
	each matrix type?	[✓]	__	__
	each concentration range (i.e. low, med.)?	[✓]	__	__
	ACTION: If no for any of the above, flag all positive data greater than or equal to 10xIDLs as estimated (J) for which Serial Dilution Analysis was not performed, and summarize the deficiency on the DPO report.			
.1.9.11.2	Was field blank(s) used for Serial Dilution Analysis?	__	[✓]	__
	ACTION: If yes, flag all associated data ≥ 10 x IDL as estimated (J).			
	NOTE: Serial dilution analysis should be performed on a field blank when it is the only aqueous sample in SDG.			
A.1.9.11.3	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.1.9.11.4	Circle all values on Data Summary Sheet that are outside control limit 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 associated equal to or greater than 10xIDLs for which percent difference is greater than 10% but less than 100%. Reject (red-line) all associated sample results equal to or greater than 10xIDLs for which PD is greater than or equal to 100%.			
A.1.9.12 **Furnace Atomic Absorbtion (AA) QC Analysis**			
A.1.9.12.1 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.			
A.1.9.12.2 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 post digestion spike recovery less than 40%?	[✓]		
ACTION: If no for any of the above, flag all the associated data as estimated (J).			
A.1.9.12.3 Is *post digestion spike recovery less than 10% or greater than 150% for any result?		[✓]	
ACTION: If yes, reject (red-line) the affected data if recovery is <10%; reject data not flagged with "U" if spike recovery is >150%.			
NOTE: Reject the data only if the affected sample was not subsequently analyzed by Method of Standard Addition.			

* Post digestion spike is not required on the pre-digestion spiked sample when predigestion spike recovery is within control limits of 75-125% or when SR>4xSA.

		YES	NO	N/A
A.1.9.13	**Form VIII (Method of Standard Addition Results)**			
A.1.9.13.1	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.1.9.13.2	Is coefficient of correlation for MSA less than 0.990 for any sample?	__	[✓]	__
	ACTION: If yes, reject (red-line) affected data.			
A.1.9.13.3	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.1.9.13.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page E-16 through E-17?	[✓]	__	__
	ACTION: If no, note exception under contract problem/ non-compliance of data assessment narrative, or prepare a separate list.			
A.1.9.14	**Dissolved/Total or Inorganic/Total Analytes** -			
A.1.9.14.1	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)?	__	[__]	✓

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

	YES	NO	N/A

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.1.9.14.2 Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[ ]	✓
A.1.9.14.3 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.1.9.15 Form I to IX

A.1.9.15.1 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".

	YES	NO	N/A
A.1.9.15.2 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.

A.1.9.16 Form I (Field Blank) -

Circle all field blank values on Data Summary Sheet that are greater than CRDL, 2 x IDL when IDL > CRDL.

Do concentrations of field blank(s) fall below CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[___]	___	✓
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.

	YES	NO	N/A
A.1.9.17 **Form X, XI, XII (Verification of Instrumental Parameters).**			
A.1.9.17.1 Is verification report present for:			
Instrument Detection Limits (quarterly)?	[✓]		
ICP Interelement Correction Factors (annually)?	[✓]		
ICP Linear Ranges (quarterly)?	[✓]		
ACTION: If no, contact DPO of the lab.			
A.1.9.17.2 Form X (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)			
Are IDLs present for: all the analytes?	[✓]		
all the instruments used?	[✓]		
For both AA and ICP when both are used for same analyte?	[✓]		
ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.			
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?	[✓]		
ACTION: If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			

	YES	NO	N/A
A.1.9.17.3 Form XI (Linear Ranges)			
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.1.9.18 Percent Solids of Sediments			
Is soil content in sediment(s) less than 50%?	___	[✓]	___
ACTION: If yes, qualify as estimated all data not previously rejected or flagged due to other QC criteria.			

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

Date: Feb. 1990
Number: HW-2
Revision: 10

Case#	NWS	Site	Naval Weapons Station	Matrix: Soil	✓
SDG#	CLP 341	Lab	Roy F. Weston	Water	✓
Contractor	Roy F. Weston	Reviewer	Heartland ESI	Other	

A.2.1 The case description and exceptions, if any, are noted below with reason(s) for rejection or qualification as estimated value(s) J.

1. The CRDL Standards for waters for Chromium and Lead were below the lower control limit. All data is qualified as estimated.
2. The CRDL Standards for waters for Zinc and waters and soils for Silver were above the upper control limit. All positive results are qualified as estimated.
3. The Matrix Spike recoveries for soils for Antimony, Arsenic, Manganese, Selenium and Thallium were below the lower control limit. All data is qualified as estimated.
4. The Matrix Spike recovery for soils for Lead was above the upper control limit. All positive results are qualified as estimated.
5. The Duplicate analysis for soils for Manganese was outside the control limit. All data is qualified as estimated.

6. The Serial dilutions for soils for Magnesium and Vanadium were outside the control limit. All positive results are qualified as estimated.

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A.2.2 Contract-Problems/Non-Compliance

Cyanide standards were not distilled as required by Region II Protocol.

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MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: Paul B. Hamby Date: 7/9/92
Signature

Verified by: Christopher D. Scampellino Date: 7/10/92

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. NWS SOW NO. 290 SAMPLE TYPE/SDG: CLP 34A

SITE/STUDY DESCRIPTION: Naval Weapon Station SAMPLE NOS: See cover Page of Narrative

FIELD DUP. #'S: _____ LAB DUP. #'S: S-B208 Field Blank _____ MATRIX SPIKE #: S-B208

SERIAL DILUTION SAMPLE NO. S-B208 COMPLETION DATE: 2/9/92 REVIEWERS INITIALS: PBH

Parameter	X Detection Limits UG/L CRDL	IDL	I Field Blank	IIA Calib. Ver. %R Init	Continued 1	2	3	IIB CRDL Std Ver. % R Init	Fin	III Calibration Blanks Init	Continued 1	2	3	PBLEP	PBLAN	IV ICP ICS % R Init	Fin	V Mstrix Spik	VI Lab Dup RPD Diff.	VII LCS % R	IX Ser Dil % D	Meth
Al	200	29	NA	107	105	104	103			U	U	U	U	U		100	100	91	NC	99		P
Sb	60	31		106	103	102	102	88	101	U	U	U	U	U				100		101		P
As	10	1		102	102	102	102	97		U	U	U	U	U				105		104		F
Ba	200	6		104	103	101	101			U	U	U	U	U		100	100	93		98		P
Be	5	1		106	106	105	103	103	100	U	U	U	U	U		103	102	93		102		P
Cd	5	4		92	101	101	100	99	84	U	U	U	U	U		102	102	92		100		P
Ca	5000	62		105	104	103	102			U	U	U	U	U		99	98			99		P
	10	5		102	101	100	100	78	78	U	U	U	U	U		104	103	92		99		P
Co	50	4		104	103	102	100	108	100	U	U	U	U	U		106	105	95		99		P
Cr	25	2		105	103	102	101	106	99	U	U	U	U	U		105	105	94		101		P
Fe	100	30		105	104	102	101			U	U	U	U	U		103	102	91		100		P
Pb	3	1		101	100	102	103	50		U	U	U	U	U				95		88		F
Mg	5000	52		104	103	101	101			U	U	U	U	U		97	97			97		P
Mn	15	2		105	104	102	101	109	100	U	U	U	U	U		99	99	94		100		P
Hg	0.2	.04		103	105	104	102			U	U	U	U	U						105		CV
Ni	40	8		103	102	100	99	94	93	U	U	U	U	U		101	100	93		100		P
K	5000	820		104	103	103	100			U	U	U	U	U						97		P
Se	5	2		106	107	109	110	100		U	U	U	U	U		100	100	105		112		F
Ag	10	4		104	103	102	101	115	122	U	U	U	U	U				87		98		P
Na	5000	67		105	103	102	101			U	U	U	U	U						97		P
Tl	10	1		102	99	104	107	86		U	U	U	U	-2U				89		103		F
V	50	6		106	105	104	103	108	105	U	U	U	U	U		112	111	97		102		P
Zn	20	6		102	100	99	98	122	115	7	6	7	6	6		102	101	94		100		P
CN		10		105	99	103	101			U	U	U		U				84		93		C

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. NWS SOW NO. 290 SAMPLE TYPE/SDG: CLP 341

SITE/STUDY DESCRIPTION: Naval Weapon Station SAMPLE NOS: See cover Page of Narrative

FIELD DUP. #'S: _____ LAB DUP. #'S: 1-T007 Field Blank _____ MATRIX SPIKE #: 1-T007

SERIAL DILUTION SAMPLE NO. 1-T007 COMPLETION DATE: 7/9/92 REVIEWERS INITIALS: PBH

	X		I	IIA				IIB		III				IV		V	VI	VII	IX	
Parameter	Detection Limits UG/L		Field Blank	Calib. Ver. %R				CRDL Std Ver. % R		Calibration Blanks				PB RL EAN	ICP ICS % R		MS trix	Lab Dup RPD Diff	LCS % R	Ser Dil % D	Meth
	CRDL	IDL		Init	Continued 1	2	3	Init	Fin	Init	Continued 1	2	3		Init	Fin					
Al	200	29	NA	103	103	99	100			U	U	U	U	U	99	98		5	100	1	P
Sb	60	31		102	102	102	102	94	102		U	U	U	U			55		97		P
As	10	1		100	103	105	106	111			U			U			41	5	91		F
Ba	200	6		101	101	97	97			U	U	U	U	U	99	97	88	12	98	100	P
Be	5	1		103	102	99	99	102	97	U	U	U	U	U	102	99	84	0	97	100	P
Cd	5	4		101	97	92	92	103	96	U	U	U	U	U	102	99	83		96		P
Ca	5000	62		103	102	99	99			U	U	U	U	U	98	96		23	99	11	P
[illegible]	10	5		100	100	97	98	82	97	U	U	U	U	U	103	103	100	11	98	19	P
Co	50	4		100	101	97	97	100	95	U	U	U	U	U	105	102	87	200	99	100	P
Cu	25	2		101	100	97	97	98	96	U	U	U	U	U	103	102	86	1	98	100	P
Fe	100	30		102	102	99	100			U	U	U	U	11.6	101	99		6	100	2	P
Pb	3	1		105	105	108	110	87		U	U	U	U	U			149	10	98		F
Mg	5000	52		101	101	98	98			U	U	U	U	U	96	95		17	98	17	P
Mn	15	2		102	101	98	98	105	99	U	U	U	U	U	92	87	60	103	98	2	P
Hg	0.2	.04		102	99	102	99				U			U			102		99		CV
Ni	40	8		100	101	97	98	98	86	U	U	U	U	U	99	100	89		98		P
K	5000	820		100	100	99	97			U	U	U	U	U					97		P
Se	5	2		99	97	97	96	84		U	U	U	U	U			26		88		F
Ag	10	4		100	99	97	96	113	133		U	U	U	U	98	96	95		90		P
Na	5000	67		101	101	98	99			U	U	U	U	U				14	99	100	P
[illegible]	10	1		108	108	109	107	103		U	U	U	U	U			71		102		F
V	50	6		103	102	98	98	105	106	U	U	U	7	U	109	106	93	3	100	12	P
Zn	20	6		101	100	97	98	97	100	U	U	U	U	U	103	102	91	2	98	208	P
CN		10								U	U	U		U			95		94		C

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. NWS SOW NO. 290 SAMPLE TYPE/SDG: CLP 341

SITE/STUDY DESCRIPTION: _____ SAMPLE NOS: See Cover Page of Narrative

FIELD DUP. #'S: _____ LAB DUP. #'S: 1-T007 Field Blank _____ MATRIX SPIKE #: 1-T007

SERIAL DILUTION SAMPLE NO. 1-T007 COMPLETION DATE: 7/9/92 REVIEWERS INITIALS: PBH

	X		I	IIA				IIB		III					IV		V	VI	VII	IX	
Parameter	Detection Limits UG/L		Field Blank	Calib. Ver. %R				CRDL Std Ver. % R		Calibration Blanks				PBLEAN	ICP ICS % R		MS Matrix	Lab Dup RPD/Diff	LCS % R	Ser Dil % D	Meth
					Continued						Continued										
	CRDL	IDL		Init	1	2	3	Init	Fin	Init	1	2	3		Init	Fin					
Al	200	29	NA		99						U										P
Sb	60	31			101					U	U										P
As	10	1			102					U	U	U	U								CV
Ba	200	6			97						U										P
Be	5	1			98						U										P
Cd	5	4			90						U										P
Ca	5000	62			98						U										P
[illegible]	10	5			96						U										P
Co	50	4			96						U										P
Cu	25	2			96						U										P
Fe	100	30			98						U										P
Pb	3	1						73		U	U	U	U								F
Mg	5000	52			97						U										P
Mn	15	2			96						U				96	101					P
Hg	0.2	.04								U	U	U	U	U							CV
Ni	40	8			97						U										P
K	5000	820			97						U										P
Se	5	2			94						U	U									F
Ag	10	4			95						U										P
Na	5000	67			98						U										P
[illegible]	10	1			109						U	U									F
V	50	6			97						6										P
Zn	20	6			97						U										P
CN	..	10																			C

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.7: CLP Data Assessment Checklist
Inorganic Analysis

Date: Feb. 1990
Number: HW-2
Revision: 10

INORGANIC REGIONAL DATA ASSESSMENT

Region II

CASE NO. NWS

SITE Naval Weapons Station

LABORATORY Roy F. Weston

NO. OF SAMPLES/ MATRIX 13 soils / 4 waters

SDG# CLP 341

REVIEWER (IF NOT ESD) Heartland ESI

SOW# 390

REVIEWER'S NAME Paul B. Humburg

DPO: ACTION _____ FYI _____

COMPLETION DATE 7/9/92

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	↓	↓	↓	↓
8.	MSA		↓		
9.	SERIAL DILUTION	↓			
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:

HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

July 10, 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. Six (6) soil samples and one (1) Matrix Spike and Duplicate pair and one (1) water sample were analysed by the Roy F. Weston Lionville Laboratory.

Navy No.	RFW No.
09-T007	9205341011
09-T010	9205341012
09-T009	9205341013
09-T005	9205341014
09-T006	9205341015
09-T008	9205341016
09-T207	9205341020

Heartland ESI has reviewed the data for the samples listed above for Total Petroleum Hydrocarbons 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:

Total Petroleum Hydrocarbons 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
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# 9205341**, the analysis of six (6) field soil samples and one (1) matrix spike and duplicate pair and one (1) field water sample. Overall, the THPC 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

1. The Soil Preparation Blank exhibited contamination in the following concentration (2.2mg/kg). All positive results less than five times this result will qualified as estimated, "J".

Spike Recovery

No deficiencies in this section.

Matrix Spike Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE	DL	QL	SPECIFIC FINDING
All soil samples	TPHC	+	J	1

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

QL - denotes data validation qualifier

Roy F. Weston, Inc. Jacksonville Laboratory
Petroleum Hydrocarbons by IR

RFW Batch Number: 9205L341 Client: NAVAL WEAPONS/COLTSNECK Work Order: 1771-15-04-0000 Report Date: 06/05/9 4:42 Page: 1

	Cust ID:	09-001-T007	09-001-T007	09-001-T007	09-002-T010	09-003-T009	09-004-T005
Sample Information	RFW#:	011	011 MS	011 MSD	012	013	014
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Petroleum Hydrocarbon		4.7 U	89 %	86 %	5.1 U	4.3 J J	4.8 U

	Cust ID:	09-005-T006	09-006-T008	09-001-T207	PBLK	PBLK BS	PBLK
Sample Information	RFW#:	015	016	020	92DHC113-MB1	92DHC113-MB1	92DHC112-MB1
	Matrix:	SOIL	SOIL	WATER	SOIL	SOIL	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/L
Petroleum Hydrocarbon		3.6 J J	5.1 U	1.1 U	2.2 J	95 %	1.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC