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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.:	**9205L253 & 9205L265**
QA/QC Level:	**NEESA Level D - EPA Region II**
Fractions:	**VOA, SVOA, Pesticide/Aroclors, Metals**
Volume Number:	**1 of 1**

HEARTLAND ENVIRONMENTAL SERVICES, INC.
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Data Validation Report

June 30, 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 06 and 07, 1992 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were three (3) soil samples with one (1) MS/MSD and five (5) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9205L253**.

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**
15-001-K011	9205L253-003	WATER	X
15-001-K311	9205L253-004	WATER	X
15-001-K211	9205L253-005	WATER	X
06-003-B010	9205L253-006	SOIL	X
06-003-B310	9205L253-007	WATER	X
06-003-B210	9205L253-008	WATER	X
06-002-B014	9205L253-009	SOIL	X
06-002-B114	9205L253-010	SOIL	X
06-002-B114	9205L253-010MS	SOIL	X
06-002-B114	9205L253-010MSD	SOIL	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Gene Watson	Dan Heil

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

The one (1) initial calibration that was analyzed by the laboratory for these samples was not acceptable for all compound RRFs and %RSDs.

Specific findings:

1. For the initial calibration analyzed on 05/08/92, the following compound exhibited a %RSD greater than 30%. However, qualifications are not required because samples were not analyzed after the initial calibration.

   acetone

2. For the initial calibration analyzed on 05/08/92, the following compound exhibited a RRF less than 0.05. However, qualifications are not required because samples were not analyzed after the initial calibration.

   2-butanone

Continuing Calibrations

The two (2) continuing calibrations that were analyzed with this data package was acceptable for all compound RRFs.

Specific findings:

3. For the samples listed below, the continuing calibration, Y051202, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

   All water samples 2-butanone

4. For the samples listed below, the continuing calibration, W051105, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

   All soil samples acetone

Internal Standards

All of the sample and blank internal standard EICP areas met the EICP internal standard area QA/QC criteria. No qualifications are required.

Method Blanks

The two (2) method blanks that were analyzed exhibited contamination for methylene chloride and/or 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:

5. 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>

   All samples

Method Blanks (continued)

<u>acetone U</u>

06-003-B010
06-002-B014
06-002-B114
06-002-B114MS
06-002-B114MSD

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

No qualifications are required.

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
All water samples	2-butanone	+	J	3
All soil samples	acetone	+	J	4
All samples	methylene chloride	+BJ	CRQL	5
06-003-B010 06-002-B014 06-002-B114 06-002-B114MS 06-002-B114MSD	acetone	+B	U	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

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003

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

Lab File ID: Y051214

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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 ~~8~~	~~J~~B U
67-64-1	Acetone	18	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E 0000025

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-001-K011

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003

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

Lab File ID: Y051214

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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.				

FORM 1 VOA-TIC 3/90

1A 000033

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K311

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-004

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

Lab File ID: Y051215

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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 9	~~JB~~ U
67-64-1	Acetone	10	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

CLIENT SAMPLE NO.

15-001-K311

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: 9205L253-004

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

Lab File ID: Y051215

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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.

15-001-K211

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-005

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: Y051216

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: not dec. Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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
67-64-1	Acetone	4	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	6	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

6.30.92

1E 000043

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-001-K211

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-005

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

Lab File ID: Y051216

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	15.37	7	J

FORM 1 VOA-TIC 3/90

1A 0000055

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006

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

Lab File ID: W051108

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 13

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	11 8	~~JB~~ U
67-64-1	Acetone	17	~~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

0000956

CLIENT SAMPLE NO.

06-003-B010

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: 9205L253-006

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

Lab File ID: W051108

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 13

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(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/KG

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

1A 0000964

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B310

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-007

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: Y051217

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: not dec. Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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 8	JBU
67-64-1	Acetone	18	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

CLIENT SAMPLE NO.

06-003-B310

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: 9205L253-007

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

Lab File ID: Y051217

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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.

06-003-B210

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-008

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

Lab File ID: Y051218

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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 A	~~JB~~ U
67-64-1	Acetone	9	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	7	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-003-B210

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-008

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

Lab File ID: Y051218

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec.

Date Analyzed: 05/12/92

GC Column: SP1000 ID: 2.00(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 0000084 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

06-002-B014

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9205L253-009

Sample wt/vol: 5.00 (g/mL) G Lab File ID: W051109

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: not dec. 19 Date Analyzed: 05/11/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12 ~~8~~	~~JB~~ U
67-64-1	Acetone	34	~~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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-B014

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-009

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

Lab File ID: W051109

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 19

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(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/KG

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B114

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010

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

Lab File ID: W051110

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 18

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	12-6	JB U
67-64-1	Acetone	28	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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-B114

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010

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

Lab File ID: W051110

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 18

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(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/KG

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

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B114MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010 MS

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

Lab File ID: W051111

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 18

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	8	JB
67-64-1	Acetone	17	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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B114MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010 MSD

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

Lab File ID: W051112

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: not dec. 18

Date Analyzed: 05/11/92

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	9	JB
67-64-1	Acetone	26	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

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9205L253

LAB: R.F Weston

SITE: Coltsneck.

	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

1.29.92

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").			

3.0 Surrogate Recovery (Form II)

	YES	NO	N/A
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	EMW 4.29.92
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.

	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 <u>not</u> used to qualify data. Do not confuse them with the other QC blanks discussed below.

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

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

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. Unknown.

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

6.29.92

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]	___	___
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]	___	___
7.7 Are the spectra of the mass calibration compound acceptable?	[X]	___	___

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

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	
8.4 Is chromatographic performance acceptable with respect to:	Quant ion		
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).			

	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.			
GC/MS Initial Calibration (Form VI)			
12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction?	[Y]	___	___
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.

EMW 6-29-92

_____

_____

_____

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]	___

EMW 6-29-92

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	[X]	___

EMW 6-29-92

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".

14.0 Internal Standards (Form VIII)

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

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit

(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. ID.

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. 92052253 SDG No. —— LABORATORY R.F. Weston SITE Cottbuck.

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: Eugene M. Watson Date: 6/29/1992

Verified By: Daniel J. Heil Date: 6/30/1992

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.

No Action

6-29-92

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

92LYY177-MB1

CH_2Cl_2 - CRQL

15.001.K011 06.003.B310 06.002.B014
15.001.K311 06.003.B010 06.002.B114
15.001.K211 06.003.B210 06.002.B114 MS/MSD

Acetone - 0

06.008.B01
06.002.B014
06.002.B114
06.002.B114 MS/MSD

B) Field or rinse blank contamination

Not ID.

C) Water blank contamination

See above.

D) Trip blank contamination

Not ID.

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

6.29.92

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".

Initial Cal- 5.8.92 No Samples
2. Butanone < 0.05
1,1,2,2. Tetrachloroethane < 0.500 - No action required.

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.

Initial Cal 5-8-92 (1050W) Two samples.
Acetone 41.6%

Cont Cal. Y051202 - All Waters
J (>25% - <50%) 2. Butanone.

Cont. Cal W051105 - All Soils.
J (>25% - <50%) Acetone.

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

6.29.92

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.

No Action

6.29.92

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

6-29-92

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.

Jo Antoni

6.29.92

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

No Action

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Acceptable.

12. CONTRACT PROBLEMS Ø NON-COMPLIANCE:

No Action

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

None.

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

No Action

6-29-92

DPO: [ ] ACTION [ ] FYI Region_____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9205L253 LABORATORY R.F. Weston

SDG NO. ——— DATA USER R.F. Weston

SOW 3/90 Rev REVIEW COMPLETION DATE 6.29.92

NO. OF SAMPLES 5 WATER 3 SOIL ____ OTHER

REVIEWER [ ] ESD [ ] ESAT [X] OTHER, CONTRACT/CONTRACTOR Heart Land 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	X			
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: 6.29.92
Case #: 92052253
Project: Coltsneck
Lab Name: Lit Alpha
Reviewer's Initials: EMW
Number of Samples: 6.29.92

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	0	0	0	0	8	0 / 280
PEST (20)								
PCB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)	0	0	0	11	0	0	8	11 / 280
PEST (20)								
PCB (7)								
TCDD (1)								

000051

HEARTLAND ENVIRONMENTAL SERVICES, INC.
P.O. BOX 163 ST. PETERS MO 63376
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Data Validation Report

June 29, 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 5, 6, and 7, 1992 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were five (5) soil samples with one (1) MS/MSD and three (3) water samples with one (1) MS/MSD which was received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9205L253**.

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

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

SAMPLES AND FRACTIONS REVIEWED

Sample Identifications		Analytical Fraction	
CLIENT ID	**RF WESTON ID**	**Matrix**	**SVOA**
15-001-B008	9205L253-001	SOIL	X
15-001-B008MS	9205L253-001MS	SOIL	X
15-001-B008MSD	9205L253-001MS	SOIL	X
15-002-B007	9205L253-002	SOIL	X
15-001-K011	9205L253-003	WATER	X
15-001-K011MS	9205L253-003MS	WATER	X
15-001-K011MSD	9205L253-003MSD	WATER	X
15-001-K211	9205L253-005	WATER	X
06-003-B010	9205L253-006	SOIL	X
06-003-B210	9205L253-008	WATER	X
06-002-B014	9205L253-009	SOIL	X
06-002-B114	9205L253-010	SOIL	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Gene Watson	Dan Heil

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

Two (2) of the three (3) 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).

06-002-B114	pentachloro- phenol di-n-octylphthalate

Continuing Calibrations

The two (2) 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, S051402, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

15-001-K011	2,2'-oxybis-
15-001-K011MS	(2-chloropropane)
15-001-K011MSD	4-chloroaniline
	2-nitroaniline
	4-nitrophenol
	4-nitroaniline

3. For the samples listed below, the continuing calibration, S051402, 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).

15-001-K011	3-nitroaniline
15-001-K011MS	
15-011-K011MSD	

4. For the samples listed below, the continuing calibration, S051502, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

15-001-K211	2,2'-oxybis-
06-003-B210	(2-chloropropane)
	N-nitroso-di-n-propylamine
	4-chloroaniline
	2-nitroaniline
	2,4-dinitrophenol
	4-nitrophenol
	carbozole
	3,3'-dichlorobenzidine

Continuing Calibrations (continued)

5. For the samples listed below, the continuing calibration, S051502, 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).

15-001-K211	3-nitroaniline
06-003-B210	4-nitroaniline

6. For the samples listed below, the continuing calibration, S051803, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

15-001-B008	2,4-dinitro-
15-002-B007	phenol
15-001-B008MS	4-nitrophenol
15-001-B008MSD	butylbenzylphthalate
	bis(2-ethylhexyl)phthalate
	di-n-octylphthalate
	2,4,6-tribromophenol (surrogate)

7. 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).

06-003-B010	2,4-dinitro-
06-002-B014	phenol

Internal Standards

All of the sample and blank internal standard EICP areas, with the exception of one (1) EICP area in 15-001-B008MSD and SBLKLE0690-MB1-BS, met the EICP internal standard area QA/QC criteria. No qualifications are required for the samples with non compliant EICP areas.

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:

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

Surrogates

Eight (8) surrogate recoveries were above 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:

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

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
06-002-B114	pentachloro-phenol di-n-octylphthalate	+	J	1
15-001-K011 15-001-K011MS 15-001-K011MSD	2,2'-oxybis-(2-chloropropane) 4-chloroaniline 2-nitroaniline 4-nitrophenol 4-nitroaniline	+	J	2
15-001-K011 15-001-K011MS 15-011-K011MSD	3-nitroaniline	+/-	J/UJ	3
15-001-K211 06-003-B210	2,2'-oxybis-(2-chloropropane) N-nitroso-di-n-propylamine 4-chloroaniline 2-nitroaniline 2,4-dinitrophenol 4-nitrophenol carbozole 3,3'-dichlorobenzidine	+	J	4
15-001-K211 06-003-B210	3-nitroaniline 4-nitroaniline	+/-	J/UJ	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
15-001-B008 15-002-B007 15-001-B008MS 15-001-B008MSD	2,4-dinitro-phenol 4-nitrophenol butylbenzylphthalate bis(2-ethylhexyl)phthalate di-n-octylphthalate	+	J	6
06-003-B010 06-002-B014	2,4-dinitro-phenol	+	J	7
All samples	TICs	+JB	R	8
All samples	All analytes	< 1J	CRQL	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.

15-001-B008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: S051806

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
95-48-7	2-Methylphenol	380	U
108-60-1	2,2'-oxybis(2-Chloropropane)	380	U
106-44-5	4-Methylphenol	380	U
621-64-7	N-Nitroso-di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
106-47-8	4-Chloroaniline	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
91-57-6	2-Methylnaphthalene	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
95-95-4	2,4,5-Trichlorophenol	960	U
91-58-7	2-Chloronaphthalene	380	U
88-74-4	2-Nitroaniline	960	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
99-09-2	3-Nitroaniline	960	U
83-32-9	Acenaphthene	380	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-B008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: S051806

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	960	U
100-02-7	4-Nitrophenol	960	U
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	960	U
534-52-1	4,6-Dinitro-2-methylphenol	960	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	960	U
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	150	J J 6
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	47	J J 6
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	530	J 6
117-84-0	Di-n-octyl phthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

1F 000045

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-001-B008

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: S051806

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.5

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.77	800	J NJ
2.	ALDOL CONDENSATE	~~4.95~~	~~200~~	~~JAB~~ R 8
3.	ALDOL CONDENSATE	~~5.47~~	~~100~~	~~JAB~~ R 8
4.	ADIPATE	18.15	500	J NJ
5.	UNKNOWN	21.53	100	J
6.	ADIPATE	21.85	100000	J

1B 000363

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-002-B007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-002

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

Lab File ID: S051807

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	24	J
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	960	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	960	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	960	U
83-32-9	Acenaphthene	390	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-002-B007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL Lab Sample ID: 9205L253-002

Sample wt/vol: 30.5 (g/mL) G Lab File ID: S051807

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: 15 decanted: (Y/N)__ Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/18/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	960	U	
100-02-7	4-Nitrophenol	960	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	960	U	
534-52-1	4,6-Dinitro-2-methylphenol	960	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	960	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	110	J	J 6
206-44-0	Fluoranthene	390	U	
129-00-0	Pyrene	390	U	
85-68-7	Butylbenzylphthalate	22	J	J 6
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	190	J	J 6
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

0000935

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-002-B007

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-002

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

Lab File ID: S051807

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.6

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.78	500	J NS
2.	ALDOL CONDENSATE	5.47	~~200~~	~~JAB~~ R8
3.	ETHOXYETHOXY ETHANOL	6.38	~~100~~	~~JB~~ R8
4.	ADIPATE	18.15	400	J NS
5.	ADIPATE	21.57	80	J
6.	ADIPATE	21.85	100000	J

FORM 1 SV-TIC 3/90

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-003

Sample wt/vol: 620 (g/mL) ML Lab File ID: S051409

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/14/92

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	16	U
111-44-4	bis(2-Chloroethyl)ether	16	U
95-57-8	2-Chlorophenol	16	U
541-73-1	1,3-Dichlorobenzene	16	U
106-46-7	1,4-Dichlorobenzene	16	U
95-50-1	1,2-Dichlorobenzene	16	U
95-48-7	2-Methylphenol	16	U
108-60-1	2,2'-oxybis(2-Chloropropane)	16	U
106-44-5	4-Methylphenol	16	U
621-64-7	N-Nitroso-di-n-propylamine	16	U
67-72-1	Hexachloroethane	16	U
98-95-3	Nitrobenzene	16	U
78-59-1	Isophorone	16	U
88-75-5	2-Nitrophenol	16	U
105-67-9	2,4-Dimethylphenol	16	U
111-91-1	bis(2-Chloroethoxy)methane	16	U
120-83-2	2,4-Dichlorophenol	16	U
120-82-1	1,2,4-Trichlorobenzene	16	U
91-20-3	Naphthalene	16	U
106-47-8	4-Chloroaniline	16	U
87-68-3	Hexachlorobutadiene	16	U
59-50-7	4-Chloro-3-methylphenol	16	U
91-57-6	2-Methylnaphthalene	16	U
77-47-4	Hexachlorocyclopentadiene	16	U
88-06-2	2,4,6-Trichlorophenol	16	U
95-95-4	2,4,5-Trichlorophenol	40	U
91-58-7	2-Chloronaphthalene	16	U
88-74-4	2-Nitroaniline	40	U
131-11-3	Dimethylphthalate	16	U
208-96-8	Acenaphthylene	16	U
606-20-2	2,6-Dinitrotoluene	16	U
99-09-2	3-Nitroaniline	40	U VI 3
83-32-9	Acenaphthene	16	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-003

Sample wt/vol: 620 (g/mL) ML Lab File ID: S051409

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/14/92

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	40	U
100-02-7	4-Nitrophenol	40	U
132-64-9	Dibenzofuran	16	U
121-14-2	2,4-Dinitrotoluene	16	U
84-66-2	Diethylphthalate	1	J
7005-72-3	4-Chlorophenyl-phenylether	16	U
86-73-7	Fluorene	16	U
100-01-6	4-Nitroaniline	40	U
534-52-1	4,6-Dinitro-2-methylphenol	40	U
86-30-6	N-Nitrosodiphenylamine (1)	16	U
101-55-3	4-Bromophenyl-phenylether	16	U
118-74-1	Hexachlorobenzene	16	U
87-86-5	Pentachlorophenol	40	U
85-01-8	Phenanthrene	16	U
120-12-7	Anthracene	16	U
86-74-8	Carbazole	16	U
84-74-2	Di-n-butylphthalate	1	J
206-44-0	Fluoranthene	16	U
129-00-0	Pyrene	16	U
85-68-7	Butylbenzylphthalate	16	U
91-94-1	3,3'-Dichlorobenzidine	16	U
56-55-3	Benzo(a)anthracene	16	U
218-01-9	Chrysene	16	U
117-81-7	bis(2-Ethylhexyl)phthalate	16	U
117-84-0	Di-n-octyl phthalate	16	U
205-99-2	Benzo(b)fluoranthene	16	U
207-08-9	Benzo(k)fluoranthene	16	U
50-32-8	Benzo(a)pyrene	16	U
193-39-5	Indeno(1,2,3-cd)pyrene	16	U
53-70-3	Dibenz(a,h)anthracene	16	U
191-24-2	Benzo(g,h,i)perylene	16	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-001-K011

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003

Sample wt/vol: 620 (g/mL) ML

Lab File ID: S051409

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/14/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CAPROLACTUM	9.53	1000	J NJ
2.	UNKNOWN	21.43	10	J NJ

1B 000199 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

15-001-K211

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-005

Sample wt/vol: 990 (g/mL) ML Lab File ID: S051505

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/15/92

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 UJ S
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U UJ S
83-32-9	Acenaphthene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K211

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-005

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

Lab File ID: S051505

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/15/92

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~~	~~J~~ U 9
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 0000100

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

15-001-K211

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-005

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

Lab File ID: S051505

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 7

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	20.58	20	J
2.	ALKANE	21.22	50	J
3.	ALKANE	21.82	80	J
4.	ALKANE	22.38	70	J
5.	ALKANE	23.02	40	J
6.	ALKANE	23.75	20	J
7.	ALKANE	24.58	10	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: S052104

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

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

000017

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: S052104

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.8

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	28	J
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	120	J
206-44-0	Fluoranthene	39	J
129-00-0	Pyrene	41	J
85-68-7	Butylbenzylphthalate	23	J
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	29	J
218-01-9	Chrysene	27	J
117-81-7	bis(2-Ethylhexyl)phthalate	160	J
117-84-0	Di-n-octyl phthalate	390	U
205-99-2	Benzo(b)fluoranthene	28	J
207-08-9	Benzo(k)fluoranthene	22	J
50-32-8	Benzo(a)pyrene	21	J
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

ok 6.29.92

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-003-B010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006

Sample wt/vol: 30.7 (g/mL) G

Lab File ID: S052104

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.8

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.78	1000	J NJ
2.	ALDOL CONDENSATE	5.47	~~300~~	~~ABJ~~ R 8
3.	ADIPATE	18.20	400	J NJ
4.	ADIPATE	21.58	100	J
5.	ADIPATE	21.88	40000	J
6.	UNKNOWN	22.58	300	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B210

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-008

Sample wt/vol: 840 (g/mL) ML Lab File ID: S051506

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/15/92

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	12	U
111-44-4	bis(2-Chloroethyl)ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	2,2'-oxybis(2-Chloropropane)	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-di-n-propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethylphenol	12	U
111-91-1	bis(2-Chloroethoxy)methane	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U UJ
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	30	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	30	U
131-11-3	Dimethylphthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U
99-09-2	3-Nitroaniline	30	U UJ
83-32-9	Acenaphthene	12	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B210

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-008

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

Lab File ID: S051506

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/15/92

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	30	U
100-02-7	4-Nitrophenol	30	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	30	U
534-52-1	4,6-Dinitro-2-methylphenol	30	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	30	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
86-74-8	Carbazole	12	U
84-74-2	Di-n-butylphthalate	1	J
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	12	U
56-55-3	Benzo(a)anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~0.9~~ 12	~~JB~~ U 9
117-84-0	Di-n-octyl phthalate	12	U
205-99-2	Benzo(b)fluoranthene	12	U
207-08-9	Benzo(k)fluoranthene	12	U
50-32-8	Benzo(a)pyrene	12	U
193-39-5	Indeno(1,2,3-cd)pyrene	12	U
53-70-3	Dibenz(a,h)anthracene	12	U
191-24-2	Benzo(g,h,i)perylene	12	U

(1) - Cannot be separated from Diphenylamine

CLIENT SAMPLE NO.

06-003-B210

SEMIVOLATILE 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: 9205L253-008

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

Lab File ID: S051506

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/15/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	METHYL CYCLOPENTANOL	4.47	~~20~~	~~JB~~ R8
2.	UNKNOWN	4.60	4	J NJ

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B014

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-009

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

Lab File ID: S052105

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: 18 decanted: (Y/N)__

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	24	J
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.

06-002-B014

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-009

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

Lab File ID: S052105

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: 18 decanted: (Y/N)__

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

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	76	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	140	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

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-B014

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-009

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

Lab File ID: S052105

Level: (low/med) LOW

Date Received: 05/08/92

% Moisture: 18 decanted: (Y/N)__

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/21/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.7

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.77	400	J NJ
2.	ALDOL CONDENSATE	5.47	~~100~~	~~ABJ~~ R8
3.	ADIPATE	18.15	200	J NJ
4.	ADIPATE	21.58	80	J
5.	ADIPATE	21.88	40000	J

FORM 1 SV-TIC 3/90

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B114

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010

Sample wt/vol: 31.2 (g/mL) G

Lab File ID: S052610

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/26/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

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.

06-002-B114

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010

Sample wt/vol: 31.2 (g/mL) G

Lab File ID: S052610

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/26/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

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	23	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

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

06-002-B114

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-010

Sample wt/vol: 31.2 (g/mL) G

Lab File ID: S052610

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/26/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.9

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BUTOXY ETHANOL	4.83	200	J NJ
2.	ALDOL CONDENSATE	5.52	~~100~~	~~JAB~~ R8
3.	ADIPATE	21.95	30000	J NJ
4.	PHOSPHATE	22.23	300	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-B008MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001 MS

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

Lab File ID: S051812

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol		S
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol		S
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene		S
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		S
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		S
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		S
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		S

S: SPIKE COMPOUND

FORM 1 SV-1

3/90

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-B008MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001 MS

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

Lab File ID: S051812

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

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		S
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene		S
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		S
85-01-8	Phenanthrene	390	U
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-butylphthalate	170	J
206-44-0	Fluoranthene	390	U
129-00-0	Pyrene		S
85-68-7	Butylbenzylphthalate	39	J
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	500	
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

S: SPIKE COMPOUND

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-B008MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001 MSD

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

Lab File ID: S051813

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

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

S: SPIKE COMPOUND

FORM 1 SV-1

3/90

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-B008MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-001 MSD

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

Lab File ID: S051813

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 500(uL)

Date Analyzed: 05/18/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol		S
132-64-9	Dibenzofuran	380	U
121-14-2	2,4-Dinitrotoluene		S
84-66-2	Diethylphthalate	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U
86-73-7	Fluorene	380	U
100-01-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol		S
85-01-8	Phenanthrene	380	U
120-12-7	Anthracene	380	U
86-74-8	Carbazole	380	U
84-74-2	Di-n-butylphthalate	130	J
206-44-0	Fluoranthene	380	U
129-00-0	Pyrene		S
85-68-7	Butylbenzylphthalate	23	J
91-94-1	3,3'-Dichlorobenzidine	380	U
56-55-3	Benzo(a)anthracene	380	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	350	J
117-84-0	Di-n-octyl phthalate	380	U
205-99-2	Benzo(b)fluoranthene	380	U
207-08-9	Benzo(k)fluoranthene	380	U
50-32-8	Benzo(a)pyrene	380	U
193-39-5	Indeno(1,2,3-cd)pyrene	380	U
53-70-3	Dibenz(a,h)anthracene	380	U
191-24-2	Benzo(g,h,i)perylene	380	U

(1) - Cannot be separated from Diphenylamine

S: SPIKE COMPOUND

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L253-003 MS

Sample wt/vol: 420 (g/mL) ML Lab File ID: S051410

Level: (low/med) LOW Date Received: 05/08/92

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL) Date Analyzed: 05/14/92

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		S
111-44-4	bis(2-Chloroethyl)ether	24	U
95-57-8	2-Chlorophenol		S
541-73-1	1,3-Dichlorobenzene	24	U
106-46-7	1,4-Dichlorobenzene		S
95-50-1	1,2-Dichlorobenzene	24	U
95-48-7	2-Methylphenol	24	U
108-60-1	2,2'-oxybis(2-Chloropropane)	24	U
106-44-5	4-Methylphenol	24	U
621-64-7	N-Nitroso-di-n-propylamine		S
67-72-1	Hexachloroethane	24	U
98-95-3	Nitrobenzene	24	U
78-59-1	Isophorone	24	U
88-75-5	2-Nitrophenol	24	U
105-67-9	2,4-Dimethylphenol	24	U
111-91-1	bis(2-Chloroethoxy)methane	24	U
120-83-2	2,4-Dichlorophenol	24	U
120-82-1	1,2,4-Trichlorobenzene		S
91-20-3	Naphthalene	24	U
106-47-8	4-Chloroaniline	24	U
87-68-3	Hexachlorobutadiene	24	U
59-50-7	4-Chloro-3-methylphenol		S
91-57-6	2-Methylnaphthalene	24	U
77-47-4	Hexachlorocyclopentadiene	24	U
88-06-2	2,4,6-Trichlorophenol	24	U
95-95-4	2,4,5-Trichlorophenol	60	U
91-58-7	2-Chloronaphthalene	24	U
88-74-4	2-Nitroaniline	60	U
131-11-3	Dimethylphthalate	24	U
208-96-8	Acenaphthylene	24	U
606-20-2	2,6-Dinitrotoluene	24	U
99-09-2	3-Nitroaniline	60	U
83-32-9	Acenaphthene		S

S: SPIKE COMPOUND

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003 MS

Sample wt/vol: 420 (g/mL) ML

Lab File ID: S051410

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/14/92

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	60	U
100-02-7	4-Nitrophenol		S
132-64-9	Dibenzofuran	24	U
121-14-2	2,4-Dinitrotoluene		S
84-66-2	Diethylphthalate	24	U
7005-72-3	4-Chlorophenyl-phenylether	24	U
86-73-7	Fluorene	24	U
100-01-6	4-Nitroaniline	60	U
534-52-1	4,6-Dinitro-2-methylphenol	60	U
86-30-6	N-Nitrosodiphenylamine (1)	24	U
101-55-3	4-Bromophenyl-phenylether	24	U
118-74-1	Hexachlorobenzene	24	U
87-86-5	Pentachlorophenol		S
85-01-8	Phenanthrene	24	U
120-12-7	Anthracene	24	U
86-74-8	Carbazole	24	U
84-74-2	Di-n-butylphthalate	1	J
206-44-0	Fluoranthene	24	U
129-00-0	Pyrene		S
85-68-7	Butylbenzylphthalate	24	U
91-94-1	3,3'-Dichlorobenzidine	24	U
56-55-3	Benzo(a)anthracene	24	U
218-01-9	Chrysene	24	U
117-81-7	bis(2-Ethylhexyl)phthalate	24	U
117-84-0	Di-n-octyl phthalate	24	U
205-99-2	Benzo(b)fluoranthene	24	U
207-08-9	Benzo(k)fluoranthene	24	U
50-32-8	Benzo(a)pyrene	24	U
193-39-5	Indeno(1,2,3-cd)pyrene	24	U
53-70-3	Dibenz(a,h)anthracene	24	U
191-24-2	Benzo(g,h,i)perylene	24	U

(1) - Cannot be separated from Diphenylamine

S: SPIKE COMPOUND

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003 MSD

Sample wt/vol: 350 (g/mL) ML

Lab File ID: S051411

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/14/92

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		S
111-44-4	bis(2-Chloroethyl)ether	28	U
95-57-8	2-Chlorophenol		S
541-73-1	1,3-Dichlorobenzene	28	U
106-46-7	1,4-Dichlorobenzene		S
95-50-1	1,2-Dichlorobenzene	28	U
95-48-7	2-Methylphenol	28	U
108-60-1	2,2'-oxybis(2-Chloropropane)	28	U
106-44-5	4-Methylphenol	28	U
621-64-7	N-Nitroso-di-n-propylamine		S
67-72-1	Hexachloroethane	28	U
98-95-3	Nitrobenzene	28	U
78-59-1	Isophorone	28	U
88-75-5	2-Nitrophenol	28	U
105-67-9	2,4-Dimethylphenol	28	U
111-91-1	bis(2-Chloroethoxy)methane	28	U
120-83-2	2,4-Dichlorophenol	28	U
120-82-1	1,2,4-Trichlorobenzene		S
91-20-3	Naphthalene	28	U
106-47-8	4-Chloroaniline	28	U
87-68-3	Hexachlorobutadiene	28	U
59-50-7	4-Chloro-3-methylphenol		S
91-57-6	2-Methylnaphthalene	28	U
77-47-4	Hexachlorocyclopentadiene	28	U
88-06-2	2,4,6-Trichlorophenol	28	U
95-95-4	2,4,5-Trichlorophenol	70	U
91-58-7	2-Chloronaphthalene	28	U
88-74-4	2-Nitroaniline	70	U
131-11-3	Dimethylphthalate	28	U
208-96-8	Acenaphthylene	28	U
606-20-2	2,6-Dinitrotoluene	28	U
99-09-2	3-Nitroaniline	70	U
83-32-9	Acenaphthene		S

S: SPIKE COMPOUND

FORM 1 SV-1

3/90

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K011MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003 MSD

Sample wt/vol: 350 (g/mL) ML

Lab File ID: S051411

Level: (low/med) LOW

Date Received: 05/08/92

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

Date Extracted: 05/12/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/14/92

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

(1) - Cannot be separated from Diphenylamine

S: SPIKE COMPOUND

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9205L253

LAB: R.F Weston

SITE: Lattsauch

	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 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

.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).

.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

6-29-92

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?	[___]	___	___
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
7 out of 22	11 out of 22

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

Water	Soils
1 out of 11	2 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.			
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 BNAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.	X	~~X~~ 6-29-92	
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.)			

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]

Not 1B.

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

6.29.92

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

	YES	NO	N/A
8.1 Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following:			
a. Samples and/or fractions as appropriate	[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] 6-29-92	X Quantion	
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 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
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 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.

6-29-92

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
15-001-B008MSD	Perylene-d12	24552	4341	17364
SBLKE0690-MB1BS	Chrysene-d12	25460	27260	109038

(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?	[ ]		✓

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

Not ID.

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. 92052253 SDG No. ——— LABORATORY Weston SITE Coltsmeck.

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: Eugene R. Wetzel Date: 6/29/1992

Verified By: Dennis J. Heid Date: 6/30/1992

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.

No Action

6.29.92

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

92LE0688-MB1 – reject bis(2-EH)phthalate result – less than 1 ug/L.

B) Field or rinse blank contamination

Not ID.

C) Water blank contamination

See above

D) Trip blank contamination

Not ID.

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

6-29-92

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".

No Action

6.29.92

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.

* Cont. Cal. S051402 15.001-K011, MS, MSD
J (>25%-<50%) 2,2'-oxybis(2-chloropropane), 4-Chloroaniline, 2-Nitroaniline, 4-Nitrophenol, 4-Nitroaniline
UJ (>50%-<90%) 3-Nitroaniline.

* Cont Cal S051502 15.001-K211, 06.003-B210
J (>25%-<50%) 2,2'-oxybis(2-chloropropane), N-nitroso-di-n-propylamine, 4-Chloroaniline, 2-Nitroaniline, 2,4-Dinitrophenol, 4-Nitrophenol, Carbazole, 3,3'-Dichlorobenzidine
UJ (>50%-<90%) 3-Nitroaniline, 4-Nitroaniline.

* Cont. Cal S051803 - 15.001-B008, 15.002-B007, 15.001-008 MS/MSD
J (>25%-<50%) 2,4-Dinitrophenol, 4-Nitrophenol, Butylbenzylphthalate, bis(2-EH)phthalate, Di-n-octylphthalate, 2,4,6-Tribromophenol

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. 5052101 - 06.003.B010, 06.002.B014,
J (>25% - <50%) 2,4-Dinitrophenol.
* Initial Cal 5.26.92 06.002.B014
J (>25% - <90%) Pentachlorophenol, Di-n-octylphthalate.

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.

Eight (8) surrogate recoveries were above QA limits. No more than one (1) per fraction. No action is required.

6.29.92

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.

15.001.B008MSD – Perylene-d_{12} – above range

SBLKLE0690-MB1-BS Chrysene-d_{12} - below range –

Qualifications are not required for these samples.

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

6-29-92

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.

The water and soil MS/MSD contained many cmpds. above the advisory limits. Several RPDs were out of QA range as a result of the high recoveries. No action is required.

4-29-92

ATTACHMENT 1
SOP NO. HW-6

PAGE__OF__

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

No Action.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Acceptable.

12. CONTRACT PROBLEMS Ø NON-COMPLIANCE:

No Action.

13. This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used.

None.

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

No Action

6.29.92

DPO: [ ] ACTION [ ] FYI Region_____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 92051253 LABORATORY R.F. Weston

SDG NO. — DATA USER R.F. Weston

SOW 3/90 Rev REVIEW COMPLETION DATE 2-29-92

NO. OF SAMPLES 53 WATER 5 SOIL _____ OTHER

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

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES		O		
2. GC-MS TUNE/ GC PERFORMANCE		O		
3. INITIAL CALIBRATIONS		O		
4. CONTINUING CALIBRATIONS		X		
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		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: CLP / Region II
Date: 6-29-92
Project: Coltsmick
Case #: 92051253
Reviewer's Initials: EMW
Lab Name: R.F. Weston
Number of Samples: 8

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	8	0 / 120
B/N (50)	0	0	0	0	0	2	8	2 / 400
VOA (35)								
PEST (20)								
PCB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)	0	0	0	0	0	0	8	0 / 120
B/N (50)	0	0	12	0	0	0	8	12 / 400
VOA (35)								
PEST (20)								
PCB (7)								
TCDD (1)								

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

Data Validation Report

Pesticide/Aroclors

June 30, 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 CLEAN program May 5, 6, and 7, 1992 at the **NWS Earle - ColtsNeck, NJ** site. There were three (3) water samples with no MS/MSD and three (3) soil samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratory - Lionville in this analytical batch, **RFW Lot# 9205L253.**

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.

SAMPLES AND FRACTIONS REVIEWED

Roy F. Weston, Inc.

Sample Identifications		Analytical Fraction	
FIELD ID	**LABORATORY ID**	**Matrix**	**PEST**
15-001-K011	9205L253-003	WATER	X
15-001-K211	9205L253-005	WATER	X
06-003-B010	9205L253-006	SOIL	X
06-003-B010MS	9205L253-006MS	SOIL	X
06-003-B010MSD	9205L253-006MSD	SOIL	X
06-003-B210	9205L253-008	WATER	X
06-002-B014	9205L253-009	SOIL	X
06-002-B014	9205L253-009	SOIL	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.

Three (3) water samples with no MS/MSD and three (3) soil samples with one (1) MS/MSD were included in this analytical data package, **RFW Lot # 9205L253**. 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 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.

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 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 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 for either the water or the soil Method Blank. However, a very large, offscale, peak near the RTW of Endrin Aldehyde was identified on both columns.

Specific Finding

1. All reported non-detect results for Endrin Aldehyde are qualified "UJ" due to the presence of a large contaminant peak in both the water and soil Method Blanks and many of the associated samples.

Instrument Blanks showed no significant peaks within target compound retention time windows. Minor peaks were identified within the Endrin ketone RTW on the DB1701 column, and within the Methoxychlor RTW on the DB608 column. 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

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

Specific Finding

2. All reported non-detect results in all water samples are qualified as estimated, "UJ" due to low surrogate recoveries.

Matrix Spike/Matrix Spike Duplicate

All % Recoveries and RPDs for the soil MS/MSD and the water BS/BSD were within QC limits. 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
All	Endrin Aldehyde	U	UJ	1
All Water Samples	All	U	UJ	2
All	All "P"	+	+U/UJ	3
All	All "P"	+	NJ	4
All	All "P"	+	J	5

* 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.

15-001-K011

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-003

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

Lab File ID: 05269235.54

% Moisture: decanted: (Y/N)_

Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 05/12/92

Concentrated Extract Volume: 10000.00 (uL)

Date Analyzed: 05/28/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

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

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	Alpha-BHC	0.056	U
319-85-7	Beta-BHC	0.056	U
319-86-8	Delta-BHC	0.056	U
58-89-9	gamma-BHC (Lindane)	0.056	U
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.056	U
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.56	U
53494-70-5	Endrin ketone	0.11	U
7421934	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

UJ 2

DS 6-8-92

2

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

15-001-K211

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER — Lab Sample ID: 9205L253-005

Sample wt/vol: 890 (g/mL) ML — Lab File ID: 05269235.55

% Moisture: decanted: (Y/N)_ — Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) CONT — Date Extracted: 05/12/92

Concentrated Extract Volume: 10000.00(uL) — Date Analyzed: 05/28/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	Alpha-BHC	0.056	U
319-85-7	Beta-BHC	0.056	U
319-86-8	Delta-BHC	0.056	U
58-89-9	gamma-BHC (Lindane)	0.056	U
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.056	U
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.56	U
53494-70-5	Endrin ketone	0.11	U
7421934	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

uJ 2

DS 6-8-92

1

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B010

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006

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

Lab File ID: 05269235.77

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

Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/11/92

Concentrated Extract Volume: ~~10000.00~~ 5000 (uL) 6-9-92

Date Analyzed: 05/29/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y uwm 6/9/92 pH: 7.3

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 ~~0.79~~	~~JP~~ U	3
959-98-8	Endosulfan I	2.0	U	
60-57-1	Dieldrin	4.0	U	
72-55-9	4,4'-DDE	4.0	U	
72-20-8	Endrin	4.0 ~~1.2~~	~~JP~~ UJ	3
33213-65-9	Endosulfan II	4.0	U	
72-54-8	4,4'-DDD	4.0	U	
1031-07-8	Endosulfan sulfate	4.0	U	
50-29-3	4,4'-DDT	10	~~P~~ J	5
72-43-5	Methoxychlor	20	U	
53494-70-5	Endrin ketone	4.0	U	
7421934	Endrin aldehyde	4.0	U UJ	1
5103-71-9	alpha-Chlordane	44	~~P~~ NJ	4
5103-74-2	gamma-Chlordane	20	~~P~~ NJ	4
8001-35-2	Toxaphene	200	U	
12674-11-2	Aroclor-1016	40	U	
11104-28-2	Aroclor-1221	79	U	
11141-16-5	Aroclor-1232	40	U	
53469-21-9	Aroclor-1242	40	U	
12672-29-6	Aroclor-1248	40	U	
11097-69-1	Aroclor-1254	32	~~JP~~ J	5
11096-82-5	Aroclor-1260	40	U	

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B210

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L253-008

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

Lab File ID: 05269235.58

% Moisture: decanted: (Y/N)_

Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 05/12/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 05/28/92

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 2

DS 6-9-92

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B014

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-009

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

Lab File ID: 05269235.59

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

Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/11/92

Concentrated Extract Volume: ~~10000.00~~ 5000 DS 6-10-92 (uL)

Date Analyzed: 05/28/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-10-92 pH: 7.2

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	2.0	U
319-85-7	Beta-BHC	2.0	U
319-86-8	Delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	0.81	J
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	0.81	~~JP~~ J
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421934	Endrin aldehyde	4.0	U UJ
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	81	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

DS 6-9-92

5

1

FORM 1 PEST 03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-002-B114

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL — Lab Sample ID: 9205L253-010

Sample wt/vol: 30.2 (g/mL) G — Lab File ID: 05269235.60

% Moisture: 22. decanted: (Y/N)_ — Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) SONC — Date Extracted: 05/11/92

Concentrated Extract Volume: ~~10000.00~~ 5000 DS 6-10-92 (uL) — Date Analyzed: 05/28/92

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

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-10-92 pH: 7.0 — Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
319-84-6	Alpha-BHC	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	0.85	~~JP~~ J 5 DS
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	1.7	~~JP~~ J 5 6-9-92
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.2	U
7421934	Endrin aldehyde	4.2	U UJ 1
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	85	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

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B010MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006 MS

Sample wt/vol: 29.9 (g/mL) G

Lab File ID: 05269235.78

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

Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/11/92

Concentrated Extract Volume: ~~10000.00~~ 5000 DS 6-10-92 (uL)

Date Analyzed: 05/29/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y DS 6-10-92 pH: 7.3

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)	68.0	%
76-44-8	Heptachlor	70.0	%
309-00-2	Aldrin	35.0	%
1024-57-3	Heptachlor epoxide	0.40	JP
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	71.0	%
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	64.0	%
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	71.0	%
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421934	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	28	P
5103-74-2	gamma-Chlordane	12	P
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	81	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	24	JP
11096-82-5	Aroclor-1260	40	U

DS 6-9-92

%: SPIKE COMPOUND

FORM 1 PEST

03/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

06-003-B010MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) SOIL

Lab Sample ID: 9205L253-006 MSD

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

Lab File ID: 05269235.79

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

Date Received: 05/08/92

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 05/11/92

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

Date Analyzed: 05/29/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) ~~N~~ Y pH: 7.3

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)	68.0	%
76-44-8	Heptachlor	68.0	%
309-00-2	Aldrin	36.0	%
1024-57-3	Heptachlor epoxide	0.40	JP
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	70.0	%
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	53.0	%
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	69.0	%
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421934	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	24	P
5103-74-2	gamma-Chlordane	10	P
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	24	JP
11096-82-5	Aroclor-1260	40	U

DS 6-9-92

%: SPIKE COMPOUND

FORM 1 PEST 03/90

PACKAGE COMPLETENESS AND DELIVERABLES

RFW Lot #
CASE NUMBER: 92051253

LAB: Roy F. Weston - Lionville

SITE: NWS - Earle / Colts Neck, NJ

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

3.0 Data Validation Checklist

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

Does this package contain:

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

ACTION: Complete corresponding parts of checklist.

PART C: PESTICIDE/PCB ANALYSES

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

	YES	NO	N/A
ACTION: Call lab for explanation / resubmittals. If missing deliverables are unavailable, document effect on data under "Conclusions" section of reviewer narrative.			
3.3 Were outliers marked correctly with an asterisk?	[✓]	___	___
ACTION: Circle all outliers in red.			
3.4 Was surrogate ~~(DBC)~~ TCX &/or DCB (3/90) 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). Qualify all water sample results			
3.5 Are there any transcription/calculation errors between raw data and Form II?	___	[✓]	___
ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".			

4.0 Matrix Spikes (Form III)

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

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

Water	Soils
Ø out f 12	Ø out of 12

2E
WATER PESTICIDE SURROGATE RECOVERY

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

Case No.: NAVAL WEAPONS/COLTSNECK RFW Lot No.: 9205L253

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

	CLIENT SAMPLE NO.	TCX1 %REC #	TCX2 %REC #	DCB1 %REC #	DCB2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	15-001-K011	10*	75	5*	5*			3
02	15-001-K211	65	125	35*	35*			2
03	06-003-B210	65	115	35*	30*			2
04	PBLKLE0681-MB1	65	120	40*	35*			2
05	PBLKLE0681-MB1 BS	70	155*	70	70			1
06	PBLKLE0681-MB1 BSD	65	155*	80	75			1

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

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

	YES	NO	N/A
4.4 How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?			

Water	Soils
Ø 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)

	YES	NO	N/A
5.1 Is the Method Blank Summary (Form IV) present?	[✓]		
5.2 Frequency of Analysis: for the analysis of Pesticide TCL compounds, has a reagent/method blank been analyzed for each set of samples or every 20 samples of similar matrix (low water, med water, low soil, medium soil), whichever is more frequent?	[✓]		
5.3 Chromatography: review the blank raw data - chromatograms, quant reports or data system printouts.			
Is the chromatographic performance (baseline stability) for each instrument acceptable for PEST/PCBs?	[✓]		

ACTION: Use professional judgement to determine the effect on the data. very large peak near RTW for Endrin Aldehyde on both columns, soils & waters, qualify all non-detect results

6.0 Contamination

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

	YES	NO	N/A
6.1 Do any method/instrument/reagent blanks have positive results for PEST/PCBs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.		[✓]	
6.2 Do any field/rinse blanks have positive PEST/PCB results?		[✓]	

IBLK
- minor Endrin Ketone on DB1701 column, not confirmed
- minor Methoxychlor on DB608, not confirmed

not clearly identified, but no positive hits in any water samples

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.

not identified on C-O-C, but waters taken 5/5/92 + 5/7/92

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:

Standards + sequence conform to 3/90 SOW

a. Evaluation Standard Mix A [ ] ___ ___

b. Evaluation Standard Mix B [ ] ___ ___

c. Evaluation Standard Mix C [ ] ___ ___

d. Individual Standard Mix A [ ] ___ ___

e. Individual Standard Mix B [ ] ___ ___

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

g. Aroclors 1016/1260 [ ] ___ ___

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

ACTION: If no, take action specified in 3.2 above

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

ACTION:

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

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

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

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

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

	YES	NO	N/A
7.5 Is the linearity check RSD of all four calibration factors <10% for the quantitation column?	[✓]		

ACTION: If no, flag positive hits for all pesticide and PCB analytes "J" for all associated samples. Do not flag toxaphene or DDT if they are quantified from a 3-point calibration curve.

All < 20%

	YES	NO	N/A
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]) ?	[✓]		

for samples + stds. of interest

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.

Tox + DCB

per 3/90 SOW

	YES	NO	N/A
7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW).	[✓]		

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

8.0 Pesticide/PCB Standards Summary

Form 6D+E

	YES	NO	N/A
8.1 Is Form IX present and complete for each GC column and 72 hr sequence of analyses?	[✓]		

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

Forms 6D + F

	YES	NO	N/A
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".

	YES	NO	N/A
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".

	YES	NO	N/A
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? All RPDs < 25	✓		
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?	___	[✓]	___
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

RFW Lot# Case No. 92052L253 SDG No. 06-002-B014 LABORATORY Roy F. Weston - Lionville SITE NWS-Earle Colts Neck NJ

DATA ASSESSMENT:

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

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "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: Cristopher D. Longellier Date: 6/30/1992

Verified By: Paul B. Hanly Date: 6/30/1992

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.

All extraction & analysis holding times were met. No qualifications were required

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 *Very large peaks were identified near the RTWs for Endrin Aldehyde on both columns for soil & water blank — all non-detect results for this compound are qualified as estimated "UJ".*

B) Field or rinse blank contamination

No field or rinse blanks were identified on the COC, however, all water samples yielded non-detect results for all target analytes.

C) Water blank contamination
— minor Endrin ketone on DB1701 column + minor Methoxychlor on DB608, neither confirmed, no impact

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. Per 3/90 SOW - linearity < 20% RSD, all compounds

All continuing calibrations (Forms 7D + 7E) within QC limits, < 25% RPD - calculated correctly

No qualifications

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.

Consistently low DCB surrogate recoveries for water samples and associated method blank.

All reported non-detect results for all water samples are qualified as estimated "UJ", due to low surrogate recoveries.

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.

RTWs appropriately reported on Forms 6D + 6F.

Compounds identified on Form 10s within RTWs.

No GC/MS confirmations 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.

All Recoveries + RPD's for the soil MS/MSD, the water BS/BSD + the soil BS were within QC limits. No qualifications were required.

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 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. 92051253 LABORATORY Roy F. Weston - Lionville

SDG NO. 06-002-B014 DATA USER _____

SOW 3/90 REVIEW COMPLETION DATE 6/30/92

NO. OF SAMPLES 3 WATER 3 SOIL _____ OTHER

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

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

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

DPO ACTION ITEMS: _____

AREAS OF CONCERN: _____

Attachment 3

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

SOP NO: HW-6
Date: February 1989

Type of Review: CLP 3/90 SOW, NEESA D Date: 6/30/92 Case #: 92052253

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

Reviewer's Initials: CDS Christopher D. Sampellio Number of Samples: 6

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	6	0/120
PCB (7)	0	0	0	0	0	0	6	0/42
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
B/N (50)								
VOA (35)								
PEST (20)	3x20	0	0	6	0	0	6	66/120
PCB (7)	3x7	0	0	0	0	0	6	21/42
TCDD (1)								

0000037

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

June 30, 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. Three (3) water samples and one (1) Matrix Spike and Duplicate pair and three (3) soil samples and one (1) Matrix Spike and Duplicate pair were analysed by the Roy F. Weston Lionville Laboratory.

Navy No.	RFW No.
15-001-K001	920525303
15-001-K211	920525305
06-003-B010	920525306
06-003-B210	920525308
06-002-B014	920525309
06-002-B114	920525310

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# 9205253**, the analysis of three (3) field water samples and one (1) matrix spike and duplicate pair and three (3) field soil samples and one (1) matrix spike and duplicate pair. Overall, the inorganic data quality was fair. The 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 Cadmium and Lead were below the lower control limit. All positive and non-detect results within the affected range are qualified as estimated, "J" or "UJ".

Preparation and Field Blanks

No deficiencies in this section.

Interferences

No significant interferences were observed.

Spike Recovery

2. The Matrix Spike recoveries for waters for Antimony, Arsenic, Selenium, Silver and Thallium were below 30%. All positive and non-detect results are rejected.

3. The Matrix Spike recoveries for waters for Barium, Beryllium, Cadmium, Copper, Cobalt, Mercury, Nickel, Vanadium and Zinc was below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Metals Data Assessment Narrative (continued - Page 2)

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

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

4. The Serial dilutions for Vanadium and Zinc were outside the control limit. All positive results are qualified as estimated,"J". The Serial Dilutions for Silver and Copper were greater than 100%. All positive results are rejected.

MSA

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

Analyte	Samples
Selenium	1-K011, 1-K211, 2-B014 and 2-B114.
Thallium	1=K211.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE	DL	QL	SPECIFIC FINDING
All water samples	Cd and Pb	+/U	J/UJ	1
All water samples	Sb, As, Se, Ag and Tl.	+/U	R	2
All water samples	Ba, Be, Cd, Cu, Co, Hg, Ni, V and Zn.	+/U	J/UJ	3
All soil samples	Sb, As, Pb, and Se.			
All water samples	V and Zn	+	J	4
	Ag and Cu	+	R	
1-K011, 1-K211, 2-B014	Se	+/U	J/UJ	5
2-B114.				
1-K211.	Tl			

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

QL - denotes data validation qualifier

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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.: CLP253

Matrix (soil/water): WATER Lab Sample ID: 920525303

Level (low/med): LOW Date Received: 5/08/92

% 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	621000.00			P	
7440-36-0	Antimony	~~360.00~~	~~U~~	~~N~~	~~P~~	R2
7440-38-2	Arsenic	~~20.00~~	~~U~~	~~N~~	~~F~~	R2
7440-39-3	Barium	2040.00		N	P	
7440-41-7	Beryllium	42.50		N	P	J3
7440-43-9	Cadmium	11.90		N	P	J1,3
7440-70-2	Calcium	37900.00			P	
7440-47-3	Chromium	1840.00			P	
7440-48-4	Cobalt	388.00		N	P	J3
7440-50-8	Copper	~~189.00~~	~~B~~	~~N~~	~~P~~	~~J3~~ R4
7439-89-6	Iron	3070000.00			P	
7439-92-1	Lead	264.00		*	F	
7439-95-4	Magnesium	65800.00			P	
7439-96-5	Manganese	7620.00			P	
7439-97-6	Mercury	2.76		N	CV	J3
7440-02-0	Nickel	557.00		N	P	J3
7440-09-7	Potassium	52000.00			P	
7782-49-2	Selenium	~~20.00~~	~~U~~	~~NW~~	~~F~~	R2
7440-22-4	Silver	~~198.00~~		~~N~~	~~P~~	R2
7440-23-5	Sodium	16200.00			P	
7440-28-0	Thallium	~~20.00~~	~~U~~	~~N~~	~~F~~	R2,4
7440-62-2	Vanadium	541.00		NE	P	J3,4
7440-66-6	Zinc	1470.00		N*E	P	J3,4
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

1-K211

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

Matrix (soil/water): WATER Lab Sample ID: 920525305

Level (low/med): LOW Date Received: 5/08/92

% 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	49.80	B		P	
7440-36-0	Antimony	~~36.00~~	~~U~~	~~N~~	~~P~~	R2
7440-38-2	Arsenic	~~2.00~~	~~U~~	~~N~~	~~F~~	R2
7440-39-3	Barium	7.00	U	N	P	UJ3
7440-41-7	Beryllium	1.00	U	N	P	UJ3
7440-43-9	Cadmium	4.00	U	N	P	UJ1
7440-70-2	Calcium	62.00	U		P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U	N	P	UJ3
7440-50-8	Copper	7.00	U	N	P	UJ3
7439-89-6	Iron	206.00			P	
7439-92-1	Lead	2.00	U	*	F	UJA
7439-95-4	Magnesium	69.00	U		P	
7439-96-5	Manganese	2.00	U		P	
7439-97-6	Mercury	1.90	N		CV	
7440-02-0	Nickel	18.00	U	N	P	UJ3
7440-09-7	Potassium	896.00	U		P	
7782-49-2	Selenium	~~2.00~~	~~U~~	~~NW~~	~~F~~	R2
7440-22-4	Silver	~~8.00~~	~~U~~	~~N~~	~~P~~	R2
7440-23-5	Sodium	117.00	U		P	
7440-28-0	Thallium	~~2.00~~	~~U~~	~~NW~~	~~F~~	R2
7440-62-2	Vanadium	5.00	U	NE	P	UJ3
7440-66-6	Zinc	6.00	U	*NE	P	UJ3
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

3-B010

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

Matrix (soil/water): SOIL Lab Sample ID: 920525306

Level (low/med): LOW Date Received: 5/08/92

% Solids: 87.1

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2390.00			P	
7440-36-0	Antimony	8.27	U	N	P	UJ3
7440-38-2	Arsenic	1.50	B	N	F	J3
7440-39-3	Barium	11.70	B		P	
7440-41-7	Beryllium	.25	B		P	
7440-43-9	Cadmium	.92	U		P	
7440-70-2	Calcium	2240.00			P	
7440-47-3	Chromium	8.50			P	
7440-48-4	Cobalt	2.20	B		P	
7440-50-8	Copper	5.50	B		P	
7439-89-6	Iron	8900.00			P	
7439-92-1	Lead	11.60		*SN	F	J3
7439-95-4	Magnesium	372.00	B		P	
7439-96-5	Manganese	36.80			P	
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.13	U		P	
7440-09-7	Potassium	533.00	B		P	
7782-49-2	Selenium	.46	U	N	F	UJ3
7440-22-4	Silver	3.00			P	
7440-23-5	Sodium	72.70	B		P	
7440-28-0	Thallium	.46	U		F	
7440-62-2	Vanadium	13.30			P	
7440-66-6	Zinc	25.70			P	
	Cyanide	1.15	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

3-B210

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

Matrix (soil/water): WATER Lab Sample ID: 920525308

Level (low/med): LOW Date Received: 5/08/92

% 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	59.70	B		P	
7440-36-0	Antimony	~~36.00~~	~~U~~	~~N~~	~~P~~	R2
7440-38-2	Arsenic	~~2.00~~	~~U~~	~~N~~	~~F~~	R2
7440-39-3	Barium	7.00	U	N	P	UJ3
7440-41-7	Beryllium	1.00	U	N	P	UJ3
7440-43-9	Cadmium	4.00	U	N	P	UJ1,3
7440-70-2	Calcium	62.00	U		P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U	N	P	UJ3
7440-50-8	Copper	7.00	U	N	P	UJ3
7439-89-6	Iron	106.00			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	N	CV	UJ3
7440-02-0	Nickel	18.00	U	N	P	UJ3
7440-09-7	Potassium	896.00	U		P	
7782-49-2	Selenium	~~2.00~~	~~U~~	~~N~~	~~F~~	R2
7440-22-4	Silver	~~8.00~~	~~U~~	~~N~~	~~P~~	R2
7440-23-5	Sodium	117.00	U		P	
7440-28-0	Thallium	~~2.00~~	~~U~~	~~N~~	~~F~~	R2
7440-62-2	Vanadium	5.00	U	NE	P	UJ3
7440-66-6	Zinc	6.00	U	NE*	P	UJ3
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

2-B014

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

Matrix (soil/water): SOIL Lab Sample ID: 920525309

Level (low/med): LOW Date Received: 5/08/92

% Solids: 81.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	3090.00			P	
7440-36-0	Antimony	8.52	U	N	P	UJ3
7440-38-2	Arsenic	3.70		NS	F	J3
7440-39-3	Barium	10.50	B		P	
7440-41-7	Beryllium	.26	B		P	
7440-43-9	Cadmium	.95	U		P	
7440-70-2	Calcium	145.00	B		P	
7440-47-3	Chromium	14.40			P	
7440-48-4	Cobalt	2.70	B		P	
7440-50-8	Copper	3.60	B		P	
7439-89-6	Iron	12300.00			P	
7439-92-1	Lead	6.90		*SN	F	J3
7439-95-4	Magnesium	327.00	B		P	
7439-96-5	Manganese	37.50			P	
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.26	U		P	
7440-09-7	Potassium	854.00	B		P	
7782-49-2	Selenium	.46	U	NW	F	UJ3, S
7440-22-4	Silver	1.89	U		P	
7440-23-5	Sodium	61.50	B		P	
7440-28-0	Thallium	.46	U		F	
7440-62-2	Vanadium	11.00	B		P	
7440-66-6	Zinc	12.00			P	
	Cyanide	1.23	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

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1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

2-B114

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

Matrix (soil/water): SOIL Lab Sample ID: 920525310

Level (low/med): LOW Date Received: 5/08/92

% Solids: 82.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	2360.00			P	
7440-36-0	Antimony	8.52	U	N	P	UJ3
7440-38-2	Arsenic	2.50		N	F	J3
7440-39-3	Barium	8.50	B		P	
7440-41-7	Beryllium	.38	B		P	
7440-43-9	Cadmium	.95	U		P	
7440-70-2	Calcium	145.00	B		P	
7440-47-3	Chromium	8.00			P	
7440-48-4	Cobalt	1.66	U		P	
7440-50-8	Copper	4.00	B		P	
7439-89-6	Iron	7000.00			P	
7439-92-1	Lead	8.60		*N	F	J3
7439-95-4	Magnesium	213.00	B		P	
7439-96-5	Manganese	14.70			P	
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.26	U		P	
7440-09-7	Potassium	603.00	B		P	
7782-49-2	Selenium	.46	U	NW	F	UJ3, 5
7440-22-4	Silver	1.89	U		P	
7440-23-5	Sodium	57.00	B		P	
7440-28-0	Thallium	.46	U		F	
7440-62-2	Vanadium	7.60	B		P	
7440-66-6	Zinc	10.30			P	
	Cyanide	1.22	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

1-K011S

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

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	643042.6000		620843.4000		2000.00	1110.0		P
Antimony	75-125	360.0000	U	360.0000	U	500.00	0.0	N	P
Arsenic	75-125	2.0000	U	20.0000	U	40.00	0.0	N	F
Barium	75-125	3401.5000		2041.6000		2000.00	68.0	N	P
Beryllium	75-125	76.2000		42.5000		50.00	67.4	N	P
Cadmium	75-125	43.2000		11.9000		50.00	62.6	N	P
Calcium									NR
Chromium	75-125	2022.4000		1835.5000		200.00	93.4		P
Cobalt	75-125	701.3000		387.8000		500.00	62.7	N	P
Copper	75-125	363.0000		189.0000		250.00	69.6	N	P
Iron	75-125	2870706.0000		3067511.0000		1000.00	-9999.9		P
Lead	75-125	364.0000		264.0000		20.00	500.0		F
Magnesium									NR
Manganese	75-125	7589.0000		7624.0000		500.00	-7.0		P
Mercury	75-125	3.5070		2.7610		1.00	74.6	N	CV
Nickel	75-125	892.6001		557.3000		500.00	67.1	N	P
Potassium									NR
Selenium	75-125	2.0000	U	20.0000	U	10.00	0.0	N	F
Silver	75-125	207.0000		197.7000		50.00	18.6	N	P
Sodium									NR
Thallium	75-125	4.5000	B	20.0000	U	50.00	9.0	N	F
Vanadium	75-125	778.6000		540.9000		500.00	47.5	N	P
Zinc	75-125	1747.0000		1473.0000		500.00	54.8	N	P
Cyanide									NR

Comments:
Iron should have a recovery of -20000.0. Unable to enter this figure because of software limitations.

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

3-B010S

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 87.1

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	82.3000		8.2656	U	114.80	71.7	N	P
Arsenic	75-125	6.9000		1.5000	B	9.20	58.7	N	F
Barium	75-125	439.6001		11.7000	B	459.20	93.2		P
Beryllium	75-125	10.5000		.2500	B	11.50	89.1		P
Cadmium	75-125	9.9000		.9184	U	11.50	86.6		P
Calcium									NR
Chromium	75-125	54.3000		8.5000		45.90	99.6		P
Cobalt	75-125	108.3000		2.2000	B	114.80	92.4		P
Copper	75-125	58.0000		5.5000	B	57.40	91.4		P
Iron									NR
Lead	75-125	13.7700		11.6000		4.59	47.0	N	F
Magnesium									NR
Manganese	75-125	143.5000		36.8000		114.80	93.0		P
Mercury									NR
Nickel	75-125	106.6000		4.1328	U	114.80	92.9		P
Potassium									NR
Selenium	75-125	1.5000		.4592	U	2.30	67.0	N	F
Silver	75-125	12.5300		3.0000		11.50	82.6		P
Sodium									NR
Thallium	75-125	9.6000		.4592	U	11.50	83.8		F
Vanadium	75-125	123.8000		13.3000		114.80	96.2		P
Zinc	75-125	133.2000		25.7000		114.80	93.6		P
Cyanide	75-125	5.2260		1.1480	U	5.74	91.0		C

Comments:

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

1-K011A

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

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		36.00	U	360.00	U	120.0	0.0		P
Arsenic									NR
Barium		5571.50		2041.60		4000.0	88.2		P
Beryllium		114.00		42.50		80.0	89.4		P
Cadmium		48.30		11.90		25.0	145.6		P
Calcium									NR
Chromium									NR
Cobalt		1069.10		387.80		800.0	85.2		P
Copper		521.30		189.00		50.0	664.6		P
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel		1575.10		557.30		1200.0	84.8		P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium		5.00	U	541.00		100.0	-541.0		P
Zinc		1279.00		1473.00		300.0	-64.7		P
Cyanide									NR

Comments:

FORM V (Part 2) - IN

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

3-B010A

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

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		53.70	B	36.00	U	120.0	44.8		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

FORM V (Part 2) - IN

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

1-K011D

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

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		620843.4000		619689.9000		.2		P
Antimony		36.0000	U	360.0000	U			P
Arsenic		20.0000	U	2.0000	U			F
Barium		2041.6000		2040.5000		.1		P
Beryllium		42.5000		43.3000		1.9		P
Cadmium	5.0	11.9000		15.3000		25.0		P
Calcium		37874.3000		37561.5000		.8		P
Chromium		1835.5000		1810.0000		1.4		P
Cobalt		387.8000		385.8999		.5		P
Copper		189.0000		171.0000		10.0		P
Iron		3067511.0000		2847346.0000		7.4		P
Lead		264.0000		356.0000		29.7	*	F
Magnesium		65751.0000		65958.1300		.3		P
Manganese		7624.0000		6992.0000		8.6		P
Mercury		2.7610		2.7070		2.0		CV
Nickel		557.3000		527.6001		5.5		P
Potassium		51971.0000		52650.7000		1.3		P
Selenium		20.0000	U	20.0000	U			F
Silver		197.7000		186.0000		6.1		P
Sodium	5000.0	16242.9000		16251.0000		.1		P
Thallium		20.0000	U	20.0000	B	200.0		F
Vanadium		541.0000		532.8999		1.5		P
Zinc		1473.0000		1320.0000		10.9	*	P
Cyanide								NR

FORM VI - IN

03/90

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

3-B010D

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP253

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

% Solids for Sample: 87.1 % Solids for Duplicate: 87.1

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum		2390.0000		2486.0000		3.9		P
Antimony		8.2656	U	8.2656	U			P
Arsenic	2.3	1.5000	B	2.8000		60.5		F
Barium		11.7000	B	11.8000	B	.8		P
Beryllium		.2500	B	.3000	B	16.7		P
Cadmium		.9184	U	.9184	U			P
Calcium	1148.0	2239.7000		3353.7000		39.8		P
Chromium	2.3	8.5000		10.2000		18.4		P
Cobalt		2.2000	B	2.0000	B	9.8		P
Copper	5.7	5.5000	B	6.2000		11.4		P
Iron		8896.5000		10296.6000		14.6		P
Lead		11.6000		18.6000		46.4	*	F
Magnesium		371.7000	B	935.3999	B	86.3		P
Manganese		36.8000		42.2000		13.7		P
Mercury								NR
Nickel		4.1328	U	4.1328	U			P
Potassium		532.8999	B	475.0000	B	11.5		P
Selenium		.4592	U	.4592	U			F
Silver	2.3	3.0000		2.5000		19.1		P
Sodium		72.7000	B	75.9000	B	4.4		P
Thallium		.4592	U	.4592	U			F
Vanadium	11.5	13.3000		15.0000		11.7		P
Zinc		25.7000		29.1000		12.3		P
Cyanide		1.1480	U	1.1480	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

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

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".

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) -

	YES	NO	N/A
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 <u>Form III (Initial and Continuing Calibration Blanks)</u>

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.)

		YES	NO	N/A
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).

		YES	NO	N/A
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.			

PBH 6/29/92

	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?	___	[✓]	___

* 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.)

	YES	NO	N/A
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#	N.W.S.	Site	Naval Weapons Station	Matrix: Soil	✓
SDG#	CLP 253	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 water for Cadmium and Lead were below the lower control limit. All data near the CRDL are qualified as estimated.

2. The Matrix Spike Recoveries for waters for Antimony, Arsenic, Manganese, Selenium, Silver and Thallium were below 30%. All data is rejected.

3. The Matrix Spike Recoveries for waters for Barium, Beryllium, Cadmium, Copper, Cobalt, Mercury, Nickel, Vanadium and Zinc were below the lower control limit. All data is qualified as estimated.

4. The Matrix Spike Recoveries for soils for Antimony, Arsenic, Lead and Selenium were below the lower control limit. All data is qualified as estimated.

5. The Serial Dilutions for waters for Vanadium and Zinc were outside the control limit. All positive results are qualified as estimated.
6. The Serial Dilutions for Silver and Copper were greater than 100%. All data is rejected.

PBH 6/29/92

A.2.2 Contract-Problems/Non-Compliance

The ICV and Mid-range Cyanide standards were not distilled as required by Region II.

PBH. 6/29/92

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: Paul B. Hurley Date: 6/29/92
Signature

Verified by: Christopher D. Lapellico Date: 7/1/92

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. N.W.S. SOW NO. 390 SAMPLE TYPE/SDG: CLP 253

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: 1-K011, 1-K211, 3-B010, 3-B210, 2-B014 and 2-B114

FIELD DUP. #'S: _____ LAB DUP. #'S: 1-K011/3-B010 Field Blank MATRIX SPIKE #: 1-K011/3-B010

SERIAL DILUTION SAMPLE NO. 1-K011/3-B010 COMPLETION DATE: 6/29/92 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				PBL 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		103	105	106	105			U	U	U	U	U	102	99	110	.2	101	.5	P
Sb	60	31		102	105	106	105	88	94	U	U	U	U	U			0		103		P
As	10	1		98	98	96	97	110		2.3	U	U	U	U			0		97		F
Ba	200	6		101	103	104	104			U	U	U	U	U	102	98	68	.1	101	.3	P
Be	5	1		102	104	106	105	101	101	U	U	U	U	U	107	104	67	1.9	105	7.1	P
Cd	5	4		95	100	101	96	78	85	U	U	U	U	U	104	102	63	.25	96	100	P
Ca	5000	62		102	105	106	105			U	U	U	U	U	102	99		.8	102	3.1	P
Cr	10	5		101	103	104	104	102	102	U	U	U	U	U	106	104	93	1.4	102	3.7	P
Co	50	4		101	103	106	104	101	100	U	U	U	U	U	108	105	63	.5	101	1.6	P
Cu	25	2		101	103	104	103	101	105	U	U	U	U	U	107	104	70	10	102	100	P
Fe	100	30		102	104	106	104			U	U	48	53	U	104	101	-999	2.4	104	3.8	P
Pb	3	1		102	101	103	104	57		U	U	U	U	U			500	30	101		F
Mg	5000	52		101	103	104	103			U	U	U	U	15.5	99	97		.3	99	2.4	P
Mn	15	2		102	104	105	104	105	102	U	U	U	U	U	107	104	-2	9	102	4.9	P
Hg	0.2	.04		94	94	93	95			U	U	U	U	U			75	2.0	99		CV
Ni	40	8		100	102	104	104	93	87	U	U	U	U	U	103	100	67	5.5	101	4.5	P
K	5000	820		101	100	102	101			U	U	U	U	U				1.3	97	1.9	P
Se	5	2		98	97	98	94	92		U	U	U	U	U			0		94		F
Ag	10	4		101	103	104	103	84	90	U	U	U	U	U	100	97	19	6.1	102	100	P
Na	5000	67		101	102	103	104			U	U	U	U	U				.1	100	.5	P
Tl	10	1		101	104	105	104	112		U	U	U	U	U			9	200	95		F
V	50	6		103	105	107	105	99	97	U	U	U	U	2.1	110	108	48	1.5	103	41	P
Zn	20	6		99	102	103	103	91	90	U	U	U	U	U	105	103	55	11	101	25	P

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. N.W.S. SOW NO. 340 SAMPLE TYPE/SDG: CLP 253

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: 1-K011, 1-K211, 3-B010, 3-B210, 2-B014 and 2-B114

FIELD DUP. #'S: _____ Field Blank _____ LAB DUP. #'S: 1-K011/3-B010 MATRIX SPIKE #: 1-K011/3-B010

SERIAL DILUTION SAMPLE NO. 1-K011/3-B010 COMPLETION DATE: 6/29/92 REVIEWERS INITIALS: PBH

	X		I	IIA				IIB		III				IV		V	VI	VII	IX	
Parameter	Detection Limits UG/L CRDL	IDL	Field Blank	Calib. Ver. %R Init	Continued 1	2	3	CRDL Std Ver. %R Init	Fin	Calibration Blanks Init	Continued 1	2	3	PBL EPN	ICP ICS %R Init	Fin	MS Matrix	Lab Dup RPD/Diff	LCS %R	Ser Dil %D	Meth
Al	200	29		103	102	102	103			U	U	U	U	U	102	102		4	103	6.7	P
Sb	60	31		100	98	98	99	97	102	U	U	U	U	U			72		103		P
As	10	1		100	101	99	100	103			U			U			59	61	92		F
Ba	200	6		101	99	101	101			U	U	U	U	U	98	98	93	18	101	4.7	P
Be	5	1		100	98	99	99	104	104	U	U	U	U	U	101	101	89	17	101	100	P
Cd	5	4		101	96	96	97	87	87	U	U	U	U	U	99	98	87		101		P
Ca	5000	62		103	101	101	102			U	U	U	U	U	100	100		40	104	7.0	P
Cr	10	5		99	97	99	99	91	96	U	U	U	U	U	101	101	100	18	103	1.6	P
Co	50	4		101	99	100	100	98	96	U	U	U	U	U	102	102	92	10	102	100	P
Cu	25	2		100	98	99	99	97	100	U	U	U	U	U	101	101	91	11	102	100	P
Fe	100	30		101	100	101	101			U	U	U	U	48	102	102		15	103	6.8	P
Pb	3	1		102	102	103	100	90			U			U			47	46	96		F
Mg	5000	52		102	101	101	102			U	U	U	69.9	U	99	99		86	102	1.1	P
Mn	15	2		107	105	106	107	109	110	U	U	U	U	U	104	103	93	14	103	5.1	P
Hg	0.2	104		96	97	98	98				U			U					95		CV
Ni	40	8		99	98	98	99	101	97	U	U	U	U	U	98	98	93		102		P
K	5000	820		100	101	99	100			U	U	U	U	U				12	101	100	P
Se	5	2		99	97	96	96	84			U			U			67		103		F
Ag	10	4		100	98	98	98	94	100	U	U	U	U	U	97	96	83	19	103	100	P
Na	5000	67		101	99	100	101			U	U	U	U	U				4	102	100	P
Tl	10	1		106	109	105	98	112			U			U			84		101		F
V	50	6		105	103	103	104	104	106	U	6.5	6.3	7.7	-5.0	104	104	96	12	104	19	P
Zn	20	6		99	98	98	99	96	98	U	U	U	U	-6.5	100	100	93	12	104	11	P
																	91		93		CA

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. N.W.S.

SITE Naval Weapons Station

LABORATORY Roy F. Weston

NO. OF SAMPLES/ MATRIX 3 waters / 2 soils

SDG# CLP 253

REVIEWER (IF NOT ESD) Heartland ESI

SOW# 390

REVIEWER'S NAME Paul B. Hunsberg

DPO: ACTION _____ FYI _____

COMPLETION DATE 6/29/92

DATA ASSESSMENT SUMMARY

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

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: _____

UNSTABLE PERFORMANCE: _____

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

June 30, 1992

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

FROM: Paul Humburg
Project Manager
Heartland ESI.

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

Navy No.	RFW No.
4-B011	920526501
4-B211	920526502

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# 9205265**, the analysis of one (1) field water sample and no (0) matrix spike and duplicate pair and one (1) field soil sample and no (0) matrix spike and duplicate pair. Overall, the inorganic data quality was fair. The Laboratory failed to submit Forms 5,6 and 9. The raw data supporting the Qc for this package may be found in CLP 253. The Laboratory should submit these forms to allow this data packagffe to stand on its own, The other 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 Cadmium and Lead were below the lower control limit. All positive and non-detect results within the affected range are qualified as estimated, "J" or "UJ".

Preparation and Field Blanks

No deficiencies in this section.

Interferences

No significant interferences were observed.

Spike Recovery

2. The Matrix Spike recoveries for waters for Antimony, Arsenic, Selenium, Silver and Thallium were below 30%. All positive and non-detect results are rejected.

3. The Matrix Spike recoveries for waters for Barium, Beryllium, Cadmium, Copper, Cobalt, Mercury, Nickel, Vanadium and Zinc was below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Metals Data Assessment Narrative (continued - Page 2)

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

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

4. The Serial dilutions for Vanadium and Zinc were outside the control limit. All positive results are qualified as estimated,"J". The Serial Dilutions for Silver and Copper were greater than 100%. All positive results are rejected.

MSA

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

Analyte	Samples
Selenium	4-B011.

HEARTLAND ENVIRONMENTAL
SERVICES, INC.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	ANALYTE	DL	QL	SPECIFIC FINDING
All water samples	Cd and Pb	+/U	J/UJ	1
All water samples	Sb, As, Se, Ag and Tl.	+/U	R	2
All water samples	Ba, Be, Cd, Cu, Co, Hg, Ni, V and Zn.	+/U	J/UJ	3
All soil samples	Sb, As, Pb, and Se.			
All water samples	V and Zn	+	J	4
	Ag and Cu	+	R	
4-B011	Se	+/U	J/UJ	5

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

QL - denotes data validation qualifier

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

17-004-B01

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP265

Matrix (soil/water): SOIL Lab Sample ID: 920526501

Level (low/med): LOW Date Received: 5/09/92

% Solids: 84.4

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	1530.00			P	
7440-36-0	Antimony	8.33	U		P	UJ3
7440-38-2	Arsenic	1.40	B	W	F	J3
7440-39-3	Barium	5.30	B		P	
7440-41-7	Beryllium	.30	B		P	
7440-43-9	Cadmium	.93	U		P	UJ1
7440-70-2	Calcium	217.00	B		P	
7440-47-3	Chromium	14.80			P	
7440-48-4	Cobalt	1.62	U		P	
7440-50-8	Copper	2.60	B		P	
7439-89-6	Iron	5010.00			P	
7439-92-1	Lead	5.30		S	F	J3
7439-95-4	Magnesium	111.00	B		P	
7439-96-5	Manganese	9.60			P	
7439-97-6	Mercury	.06	U		CV	
7440-02-0	Nickel	4.17	U		P	
7440-09-7	Potassium	344.00	B		P	
7782-49-2	Selenium	.44	U	W	F	UJ3,5
7440-22-4	Silver	1.85	U		P	
7440-23-5	Sodium	4050.00			P	
7440-28-0	Thallium	.44	U		F	
7440-62-2	Vanadium	11.30	B		P	
7440-66-6	Zinc	5.20			P	
	Cyanide	1.18	U		C	

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

17-004-B211

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP265

Matrix (soil/water): WATER Lab Sample ID: 920526502

Level (low/med): LOW Date Received: 5/09/92

% 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~~	R2
7440-38-2	Arsenic	~~2.00~~	~~U~~		~~F~~	R2
7440-39-3	Barium	7.00	U		P	UJ3
7440-41-7	Beryllium	1.00	U		P	UJ3
7440-43-9	Cadmium	4.00	U		P	UJ1, 3
7440-70-2	Calcium	73.50	B		P	
7440-47-3	Chromium	7.00	U		P	
7440-48-4	Cobalt	7.00	U		P	UJ3
7440-50-8	Copper	7.00	U		P	UJ3
7439-89-6	Iron	93.80	B		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	UJ3
7440-02-0	Nickel	18.00	U		P	UJ3
7440-09-7	Potassium	896.00	U		P	
7782-49-2	Selenium	~~2.00~~	~~U~~		~~F~~	R2
7440-22-4	Silver	~~8.00~~	~~U~~		~~P~~	R2
7440-23-5	Sodium	117.00	U		P	
7440-28-0	Thallium	~~2.00~~	~~U~~		~~F~~	R2
7440-62-2	Vanadium	5.00	U		P	UJ3
7440-66-6	Zinc	10.60	B		P	
	Cyanide				NR	J3,5

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.

17-004-B015

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP265

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 84.4

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide	75-125	5.4300		1.1840	U	5.92	91.9		C

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

17-004-Soil D

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

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP265

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

% Solids for Sample: 84.4 % Solids for Duplicate: 84.4

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide		1.1840	U	1.1840	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.)

		YES	NO	N/A
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).

		YES	NO	N/A
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?	[X]	✓	

ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative". PBH 6/30/91

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?	___	[✓]	___

* 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%?	✓	[✓]	PBH 6/30/91
	≥ 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#	N.W.S.	Site	Naval Weapons Station	Matrix: Soil	✓
SDG#	CLP 265	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 Cadmium and Lead were below the lower control limit. All data are qualified as estimated.
2. The Matrix Spike recoveries for water for Antimony, Arsenic, Selenium, Silver and Thallium were below 30%. All data is rejected.
3. The Matrix Spike recoveries for waters for Barium, Beryllium, Cadmium, Copper, Cobalt, Mercury, Nickel, Vanadium and Zinc were below the lower control limit. All data is estimated.
4. The Matrix Spike recoveries for soils for Antimony, Arsenic, Lead and Selenium were below the lower control limits. All data is estimated.
5. The Serial Dilutions for waters for Vanadium and Zinc were outside the control limit. All positive results are estimated. The Serial

Dilutions for Silver and Copper were greater than 100%. All positive results are rejected.

PBH 6/30/92

4.2.2 Contract-Problems/Non-Compliance

The ICV and Midrange Cyanide standards were not distilled as required by protocol. None of the samples were flagged for Matrix Spike, Duplicate or Serial Dilutions even though the QC in CLP 253 were to be applied.

PBH 6/30/92

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: Paul B. Hanly Date: 6/30/92
Signature

Verified by: Christopher D. Campbell Date: 7/1/92

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. N.W.S. SOW NO. 390 SAMPLE TYPE/SDG: CLP 265

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: 4-B011 and 4-B211

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

SERIAL DILUTION SAMPLE NO. _____ COMPLETION DATE: 6/29/92 REVIEWERS INITIALS: PBH

	X		I	IIA				IIB		III				IV		V	VI	VII	IX	
Parameter	Detection Limits UG/L CRDL	IDL	Field Blank	Calib. Ver. %R Init	Continued 1	2	3	CRDL Std Ver. % R Init	Fin	Calibration Blanks Init	Continued 1	2	3	PBL EAP N	ICP ICS % R Init	Fin	MS trix Spik	Lab Dup RPD Diff	LCS % R	Ser Dil % D	Meth
Al	200	29		103	105	106	105			U	U	U	U	U	102	99	NA		101	NA	P
Sb	60	31		102	105	106	105	105	94	U	U	U	U	U					103		P
As	10	1		98	98	96	97	110		3	U	U	U	U					97		F
Ba	200	6		101	103	104	104			U	U	U	U	U	102	98			101		P
Be	5	1		102	104	106	105	101	101	U	U	U	U	U	107	104			105		P
Cd	5	4		95	100	101	96	78	85	U	U	U	U	U	104	102			96		P
Ca	5000	62		102	105	106	105			U	U	U	U	U	102	99			102		P
Cr	10	5		101	103	104	104	102	102	U	U	U	U	U	106	104			102		P
Co	50	4		101	103	106	104	101	100	U	U	U	U	U	108	105			101		P
Cu	25	2		101	103	104	103	101	105	U	U	U	U	U	107	104			102		P
Fe	100	30		102	104	106	104			U	U	47.7	52.6	U	104	101			104		P
Pb	3	1		102	101	103	104	57		U	U	U	U	U					101		F
Mg	5000	52		101	103	104	103			U	U	U	U	15.5	99	97			99		P
Mn	15	2		102	104	105	104	105	102	U	U	U	U	U	107	104			102		P
Hg	0.2	.04		94	94	93	95			U	U	U	U	U					99		CV
Ni	40	8		100	102	104	104	93	87	U	U	U	U	U	103	100			101		P
K	5000	820		101	100	102	101			U	U	U	U	U					97		P
Se	5	2		98	97	98	94	92		U	U	U	U	U					94		F
Ag	10	4		101	103	104	103	84	90	U	U	U	U	U	100	97			102		P
Na	5000	67		101	102	103	104			U	U	U	U	U					100		P
Tl	10	1		101	104	105	104	112		U	U	U	U	U					95		F
V	50	6		103	105	107	105	99	97	U	U	U	U	2.1	110	108			103		P
Zn	20	6		99	102	103	103	91	90	U	U	U	U	U	105	103			101		P
				101	98	101				U	U	U	U	U							CA

000034

APPENDIX A.5 SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Roy F. Weston CASE NO. N.W.S. SOW NO. 390 SAMPLE TYPE/SDG: CLP 265

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: 4-B011 and 4-B211

FIELD DUP. #'S: LAB DUP. #'S: NA Field Blank MATRIX SPIKE #: NA

SERIAL DILUTION SAMPLE NO. COMPLETION DATE: 6/29/92 REVIEWERS INITIALS: PBH

	X		I	IIA				IIB		III					IV		V	VI	VII	IX	
Parameter	Detection Limits UG/L CRDL	IDL	Field Blank	Calib. Ver. %R Init	Continued 1	2	3	CRDL Std Ver. %R Init	Fin	Calibration Blanks Init	Continued 1	2	3	PBLEAN	ICP ICS %R Init	Fin	MS trix	Lab Dup RPD Diff	LCS %R	Ser Dil %D	Meth
Al	200	29		103	102	102	103			U	U	U	U	U	102	102	NA		103	NA	P
Sb	60	31		100	98	98	99	97	102	U	U	U	U	U					103		P
As	10	1		101	101	99	100	103			U			U					92		F
Ba	200	6		101	99	101	101			U	U	U	U	U	98	98			101		P
Be	5	1		100	98	99	99	104	104	U	U	U	U	U	101	101			101		P
Cd	5	4		101	96	96	97	87	87	U	U	U	U	U	99	98			101		P
Ca	5000	62		103	101	101	102			U	U	U	U	U	100	100			104		P
[illegible]	10	5		99	97	99	99	91	96	U	U	U	U	U	101	101			103		P
Co	50	4		101	99	100	100	98	96	U	U	U	U	U	102	102			102		P
Cr	25	2		100	98	99	99	99	100	U	U	U	U	U	101	101			102		P
Cu	100	30		101	100	101	101			U	U	U	U	48.2	102	102			103		P
Fe	3	1		102	102	103	100	90			U			U					96		F
Mg	5000	52		102	101	101	102			U	U	U	69.9	U	99	99			102		P
Mn	15	2		107	105	106	107	109	111	U	U	U	U	U	104	103			103		P
Hg	0.2	104		96	97	98	98				U			U					95		CV
Ni	40	8		99	98	98	99	101	97	U	U	U	U	U	98	98			102		P
K	5000	820		100	101	99	100			U	U	U	U	U					101		P
Se	5	2		99	97	96	96	84			U			U					103		F
Ag	10	4		100	98	98	98	94	100	U	U	U	U	U	97	96			103		P
Na	5000	67		101	99	100	101			U	U	U	U	U					102		P
Tl	10	1		106	105	105		112			U			U					101		F
V	50	6		105	103	103	104	104	106	U	6.5	6.3	7.7	-5.0	104	104			104		P
Zn	20	6		99	98	98	99	96	98	U	U	U	U	-6.5	100	100			104		P

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. N.W.S.

SITE Naval Weapons Station

LABORATORY Roy F. Weston

NO. OF SAMPLES/ MATRIX 1 water / 1 soil

SDG# CLP 265

REVIEWER (IF NOT ESD) Heartland ESI

SOW# 390

REVIEWER'S NAME Paul B. Humbury

DPO: ACTION _____ FYI _____

COMPLETION DATE 6/30/92

DATA ASSESSMENT SUMMARY

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

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: