



# HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

N60478.AR.000211  
NWS EARLE  
5090.3a

## DATA VALIDATION

## REPORT

## COPY

**Client Name:** Roy F. Weston, Inc.  
**Site Name:** NWS - Earle, ColtsNeck, NJ  
**RFW Lot No.:** 9205L195  
**QA/QC Level:** NEESA Level D - EPA Region II  
**Fractions:** VOA, SVOA, Pesticide/Aroclors,  
Metals  
**Volume Number:** 1 of 1



# HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

## 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 April 30 and May 01, 1992 at the **NWS Earle-Coftsneck Naval Weapons Station** site. There were three (3) water samples with one (1) MS/MSD which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, R. F. Weston Number **9205L195**.

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.

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**SAMPLES AND FRACTIONS REVIEWED**

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>VOA</u>
23-001-K029	9205L195-001	WATER	X
23-001-K229	9205L195-002	WATER	X
23-001-K329	9205L195-003	WATER	X
23-001-K329MS	9205L195-003MS	WATER	X
23-001-K329MSD	9205L195-003MSD	WATER	X

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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 acceptable for all compound %RSDs.

### Specific findings:

1. For the samples listed below, the initial calibration analyzed on 05/06/92, contained the following compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject (R) all non detect results.

23-001-K029

2-butanone

23-001-K229

23-001-K329

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## DATA ASSESSMENT NARRATIVE

### VOLATILE ANALYSIS

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#### Continuing Calibrations

The one (1) continuing calibration that was analyzed with this data package was acceptable for all compound %Ds.

Specific findings:

2. For the samples listed below, the continuing calibration, AK702, contained the following compounds with RRFs less than 0.05. Qualify all positive results for these compounds as estimated (J) and reject (R) all non detect results.

23-001-K329MS	2-butanone
23-001-K329MSD	

#### 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

One (1) of the two (2) method blanks that were analyzed exhibited contamination for methylene chloride. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific Findings:

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

#### methylene chloride - CRQL

23-001-K329MS
23-001-K329MSD

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**DATA ASSESSMENT NARRATIVE**

**VOLATILE ANALYSIS**

**PAGE - 3**

**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.

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## **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.

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## SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
23-001-K029 23-001-K229 23-001-K329	2-butanone	+/-	J/R	1
23-001-K329MS 23-001-K329MSD	2-butanone	+/-	J/R	2
23-001-K329MS 23-001-K329MSD	methylene chloride	+BJ	CRQL	3

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

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U 0 0 0 0 2 1

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001

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

Lab File ID: AK5617

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/06/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	<u>Q</u>
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	5	J
67-64-1	Acetone	55	
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	<del>10</del>	<del>U</del> R1
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-001-K029

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001

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

Lab File ID: AK5617

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/06/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K229

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-002

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

Lab File ID: AK5618

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/06/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	56	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	5	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U R 1
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

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1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-001-K229

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-002

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

Lab File ID: AK5618

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/06/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K329

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-003

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

Lab File ID: AK5619

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/06/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	<u>Q</u>
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	5	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	<del>10</del>	<del>U</del> R1
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E  
VOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-001-K329

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-003

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

Lab File ID: AK5619

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/06/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K329MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-003 MS

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

Lab File ID: AK5706

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/07/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	<u>Q</u>
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene		S
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		S
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene		S
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		S
108-90-7	Chlorobenzene		S
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K329MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-003 MSD

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

Lab File ID: AK5707

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: not dec.

Date Analyzed: 05/07/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/L</u>	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	1	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene		S
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		S
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene		S
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		S
108-90-7	Chlorobenzene		S
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

S: SPIKE COMPOUND

FORM 1 VOA

3/90

000015

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 92052195  
 LAB: P. F. Weston  
 SITE: Cottsmuch

1.0 Data Completeness and Deliverables

YES NO N/A

1.1 Have any missing deliverables been received and added to the data package.

ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.

1.2 Was SMD 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 ENA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?

ENA data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

PART A: VOA 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).

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?

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
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

*6-29-92*

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

000017

YES NO N/A

If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. The reviewer may determine that non-detect data are unusable ("R").

3.0 Surrogate Recovery (Form II)

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

- a. Low Water
- b. Med Water
- c. Low Soil
- d. Med Soil

3.2 Are all the VOA 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

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 one or more VOA surrogate recovery outside of contract specifications for any sample or method blank?

If yes, were samples reanalyzed?

Were method blanks reanalyzed?

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 ("U").

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".

4.0 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

— —

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 VOA spike recoveries are outside QC limits?

<u>Water</u>	<u>Soils</u>
<u>0</u> out of 10	<u>N/A</u> out of 10

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

<u>Water</u>	<u>Soils</u>
<u>0</u> out of 5	<u>N/A</u> 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?

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?

5.3 Has a VOA instrument blank been analyzed at least once every twelve hours for each GC/MS system used?

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?

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

6.0 Contamination

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

6.1 Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for VOAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?

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

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.

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

	YES	NO	N/A
Methylene chloride Acetone Toluene 2-butanone	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & >10x 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
Other Contaminants	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5 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

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

6.3 Are there field/rinse/equipment blanks associated with every sample?  —

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

#### 7.0 GC/MS Tuning and Mass Calibration (Form V)

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

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

7.3 Has a tuning performance compound been analyzed for every twelve hours of sample analysis per instrument?  — —

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.

000021

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

*Handwritten:* 6.29.92

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

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

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

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

7.5 Are there any transcription / calculation errors between mass lists and Form Vs? (Check at least two values but if errors are found, check more.)  YES     NO     N/A

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.)  YES     NO     N/A

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

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

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

8.D Target Compound List (TCL) Analytes

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  YES     NO     N/A

b. Matrix spikes and matrix spike duplicates  YES     NO     N/A

c. Blanks  YES     NO     N/A

	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	<input checked="" type="checkbox"/>	—	—
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	<input checked="" type="checkbox"/>	—	—
c. Blanks	<input checked="" type="checkbox"/>	—	—
ACTION: If any data are missing, take action specified in 3.2 above.			
8.3 Are the response factors shown in the Quant Report?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—
Quantification			
8.4 Is chromatographic performance acceptable with respect to:			
Baseline stability	<input checked="" type="checkbox"/>	—	—
Resolution	<input checked="" type="checkbox"/>	—	—
Peak shape	<input checked="" type="checkbox"/>	—	—
Full-scale graph (attenuation)	<input checked="" type="checkbox"/>	—	—
Other: _____	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
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?	<input checked="" type="checkbox"/>	—	—
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?	<input checked="" type="checkbox"/>	—	—
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?	<input checked="" type="checkbox"/>	—	—
8.8 Do sample and standard relative ion intensities agree within 20%?	<input checked="" type="checkbox"/>	—	—
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?

YES     NO     N/A

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate

YES     NO     N/A

b. Blanks

YES     NO     N/A

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)?

YES     NO     N/A

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?

YES     NO     N/A

9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?

YES     NO     N/A

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.

D.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?

YES     NO     N/A

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

YES     NO     N/A

000024

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?

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

### 11.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction?

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%)?

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?

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").

000025

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.)

YES NO N/A

— [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.

---



---



---

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

13.3 Do any continuing calibration standard compounds have a RRF < 0.05?

X [ ] —

ACTION: Circle all outliers in red.

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

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

— [X] —

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

% DIFFERENCE			YES	NO	N/A
25-50	50-90	>90			
'J' positive results, no action for non detects	'J' positive results, 'U' 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.)

—  —

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?

— —

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

*6.29.92*

(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?

— —

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

Field Duplicates

YES

NO

N/A

15.1 Were any field duplicates submitted for VOA analysis?   

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

ACTION: Any gross variation between 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.

000028

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

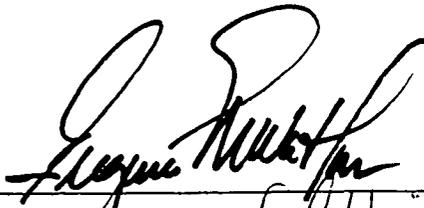
Case No. 92052195 SDG No. — LABORATORY R. Weston SITE Coffman

DATA ASSESSMENT:

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

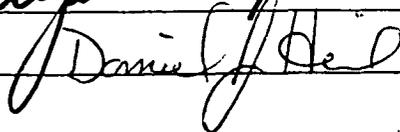
All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable), or "NJ" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Reviewer's  
Signature:



Date: 6/29/1992

Verified By:



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*

*MMW*  
*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

92LVK084- MB1

23-001-K329MS > CH<sub>2</sub>Cl<sub>2</sub> - CRO  
23-001-K329MSD

## B) Field or rinse blank contamination

N/A

## C) Water blank contamination

N/A

## D) Trip blank contamination

N/A

000031

ATTACHMENT 1  
SOP NO. HW-6

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".

*The Action.*

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. 5.6.92*

*23.001.K029, 23.001.K229, 23.001.K329*

*2. Butanone.*

*Cont. Cal. AK702*

*23.001.K329MS, MSD*

*2. Butanone.*

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.

*No Action*

*[Signature]*  
6.29.92

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.

*In Action*

*[Signature]*  
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  $\pm 30$  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*

*[Signature]*  
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  $\pm 0.06$  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*

*[Signature]*  
6-25-92

DATA ASSESSMENT:

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

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

*No Action*

*[Signature]*  
6.29.92

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

*No Action*

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

*Acceptable.*

12. CONTRACT PROBLEMS of 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*

*[Signature]*  
6.29.92

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 92052195 LABORATORY F. F. Weston  
 SDG NO. \_\_\_\_\_ DATA USER F. F. Weston  
 SOW 3/90/lws REVIEW COMPLETION DATE 6.29.92  
 NO. OF SAMPLES 3 WATER \_\_\_\_\_ SOIL \_\_\_\_\_ OTHER \_\_\_\_\_  
 REVIEWER  ESD  ESAT  OTHER, CONTRACT/CONTRACTOR Heartland EIT

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	<u>0</u>	_____	_____	_____
2. GC-MS TUNE/ GC PERFORMANCE	<u>0</u>	_____	_____	_____
3. INITIAL CALIBRATIONS	<u>X</u>	_____	_____	_____
4. CONTINUING CALIBRATIONS	<u>0</u>	_____	_____	_____
5. FIELD BLANKS ('F' = not applicable)	<u>F</u>	_____	_____	_____
6. LABORATORY BLANKS	<u>0</u>	_____	_____	_____
7. SURROGATES	<u>0</u>	_____	_____	_____
8. MATRIX SPIKE/DUPLICATES	<u>0</u>	_____	_____	_____
9. REGIONAL QC ('F' = not applicable)	<u>F</u>	_____	_____	_____
10. INTERNAL STANDARDS	<u>0</u>	_____	_____	_____
11. COMPOUND IDENTIFICATION	<u>0</u>	_____	_____	_____
12. COMPOUND QUANTITATION	<u>0</u>	_____	_____	_____
13. SYSTEM PERFORMANCE	<u>0</u>	_____	_____	_____
14. OVERALL ASSESSMENT	<u>X</u>	_____	_____	_____

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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

SOP NO: HW-6  
Date: February 1989

Type of Review: Resubmit / CR

Project: Cottbus

Date: 6.29.92

Case #: 92052195

Reviewer's Initials: EM

Lab Name: Lab Weston

Number of Samples: 3

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
H/N (50)								
VOA (35)	0	0	5	0	0	0	3	5/105
PEST (20)								
ICM (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VOA (35)	0	0	0	0	0	0	3	0/105
PEST (20)								
ICM (7)								
TCDD (1)								

000042



# HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

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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 April 30 and May 01, 1992 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were two (2) 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 9205L195**.

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.

000001

**SAMPLES AND FRACTIONS REVIEWED**

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>SVOA</u>
23-001-K029	9205L195-001	WATER	X
23-001-K029MS	9205L195-001MS	WATER	X
23-001-K029MSD	9205L195-001MS	WATER	X
23-001-K229	9205L195-002	WATER	X

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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

The initial calibrations that were analyzed by the laboratory for these samples was acceptable for all compound %RSDs and RRFs. No qualifications are required.

### Continuing Calibrations

The two (2) continuing calibration that were analyzed with the sample in this data package were acceptable for all TCL RRFs.

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## DATA ASSESSMENT NARRATIVE

### SEMIVOLATILE ANALYSIS

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#### Continuing Calibrations (continued)

##### Specific findings:

1. For the samples listed below, the continuing calibration, S051102, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

23-001-K029	4-chloro-
23-001-K029MS	aniline
23-001-K029MSD	3-nitroaniline
	2,4-dinitrophenol
	4-nitrophenol
	4-nitroaniline
	carbazole

2. For the samples listed below, the continuing calibration, IN50J, contained the following compounds with %Ds greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).

23-001-K229	2,4-dinitro-
	phenol

#### Internal Standards

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

#### Method Blanks

The extraction blank that was analyzed exhibited contamination for bis(2-ethylhexyl)phthalate and di-n-butylphthalate. 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.

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## DATA ASSESSMENT NARRATIVE

### SEMIVOLATILE ANALYSIS

PAGE - 3

#### Method Blanks (continued)

##### Specific Findings:

3. The following samples have been qualified for method blank contamination.

##### di-n-butylphthalate - CRQL

All samples

##### bis(2-ethylhexyl)phthalate - CRQL

All samples

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

#### Surrogates

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

#### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

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

#### Compound Identification/Quantitation

##### Specific findings:

5. All results reported by the laboratory that are less than  $1\mu\text{g/L}$ , 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.

000005

# 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.

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## SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
23-001-K029 23-001-K029MS 23-001-K029MSD	4-chloro-aniline 3-nitroaniline 2,4-dinitrophenol 4-nitrophenol 4-nitroaniline carbazole	+	J	1
23-001-K229	2,4-dinitrophenol	+	J	2
All samples	di-n-butylphthalate	+BJ	CRQL	3
All samples	bis(2-ethylhexyl)phthalate	+BJ	CRQL	3
All samples	TICs	+JB	R	4
All samples	All analytes	< 1J	CRQL	5

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

000007

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001

Sample wt/vol: 940 (g/mL) ML

Lab File ID: S051104

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture:        decanted: (Y/N)    

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

CAS NO.                      COMPOUND                      (ug/L or ug/Kg) ug/L                      Q

108-95-2-----	Phenol	11	U
111-44-4-----	bis(2-Chloroethyl)ether	11	U
95-57-8-----	2-Chlorophenol	11	U
541-73-1-----	1,3-Dichlorobenzene	11	U
106-46-7-----	1,4-Dichlorobenzene	11	U
95-50-1-----	1,2-Dichlorobenzene	11	U
95-48-7-----	2-Methylphenol	11	U
108-60-1-----	2,2'-oxybis(2-Chloropropane)	11	U
106-44-5-----	4-Methylphenol	11	U
621-64-7-----	N-Nitroso-di-n-propylamine	11	U
67-72-1-----	Hexachloroethane	11	U
98-95-3-----	Nitrobenzene	11	U
78-59-1-----	Isophorone	11	U
88-75-5-----	2-Nitrophenol	11	U
105-67-9-----	2,4-Dimethylphenol	11	U
111-91-1-----	bis(2-Chloroethoxy)methane	11	U
120-83-2-----	2,4-Dichlorophenol	11	U
120-82-1-----	1,2,4-Trichlorobenzene	11	U
91-20-3-----	Naphthalene	11	U
106-47-8-----	4-Chloroaniline	11	U
87-68-3-----	Hexachlorobutadiene	11	U
59-50-7-----	4-Chloro-3-methylphenol	11	U
91-57-6-----	2-Methylnaphthalene	11	U
77-47-4-----	Hexachlorocyclopentadiene	11	U
88-06-2-----	2,4,6-Trichlorophenol	11	U
95-95-4-----	2,4,5-Trichlorophenol	26	U
91-58-7-----	2-Chloronaphthalene	11	U
88-74-4-----	2-Nitroaniline	26	U
131-11-3-----	Dimethylphthalate	11	U
208-96-8-----	Acenaphthylene	11	U
606-20-2-----	2,6-Dinitrotoluene	11	U
99-09-2-----	3-Nitroaniline	26	U
83-32-9-----	Acenaphthene	11	U

1C  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001

Sample wt/vol: 940 (g/mL) ML

Lab File ID: S051104

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(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	11	U
121-14-2-----	2,4-Dinitrotoluene	11	U
84-66-2-----	Diethylphthalate	11	U
7005-72-3-----	4-Chlorophenyl-phenylether	11	U
86-73-7-----	Fluorene	11	U
100-01-6-----	4-Nitroaniline	26	U
534-52-1-----	4,6-Dinitro-2-methylphenol	26	U
86-30-6-----	N-Nitrosodiphenylamine (1)	11	U
101-55-3-----	4-Bromophenyl-phenylether	11	U
118-74-1-----	Hexachlorobenzene	11	U
87-86-5-----	Pentachlorophenol	26	U
85-01-8-----	Phenanthrene	11	U
120-12-7-----	Anthracene	11	U
86-74-8-----	Carbazole	11	U
84-74-2-----	Di-n-butylphthalate	11	U
206-44-0-----	Fluoranthene	11	U
129-00-0-----	Pyrene	11	U
85-68-7-----	Butylbenzylphthalate	11	U
91-94-1-----	3,3'-Dichlorobenzidine	11	U
56-55-3-----	Benzo(a)anthracene	11	U
218-01-9-----	Chrysene	11	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	11	U
117-84-0-----	Di-n-octyl phthalate	11	U
205-99-2-----	Benzo(b)fluoranthene	11	U
207-08-9-----	Benzo(k)fluoranthene	11	U
50-32-8-----	Benzo(a)pyrene	11	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	11	U
53-70-3-----	Dibenz(a,h)anthracene	11	U
191-24-2-----	Benzo(g,h,i)perylene	11	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

3/90

000009

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

23-001-K029

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001

Sample wt/vol: 940 (g/mL) ML

Lab File ID: S051104

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture:        decanted: (Y/N)       

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

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

Number TICs found: 8

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 105-60-2	CYCLOHEXENONE	5.30	3	J <i>JS</i>
2.	ORGANIC ACID	10.15	4	J
3.	CAPROLACTAM	10.92	600	J
4.	UNKNOWN	13.10	3	J
5.	UNKNOWN	13.50	5	J
6.	3C PHENOL	14.05	9	J <i>RY</i>
7.	UNKNOWN	21.47	40	J <i>RY</i>
8.	UNKNOWN	24.53	8	J <i>RY</i>

9659951

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

23-001-K229

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-002

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

Lab File ID: J060404

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: decanted: (Y/N)

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/04/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/L Q

108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(2-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

0700052

1C  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K229

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER Lab Sample ID: 9205L195-002

Sample wt/vol: 990 (g/mL) ML Lab File ID: J060404

Level: (low/med) LOW Date Received: 05/02/92

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

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/04/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	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 <i>4</i>	U <i>3</i>
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 <i>2</i>	U <i>3</i>
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

000012

075-0001

1F

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

23-001-K229

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-002

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

Lab File ID: J060404

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture:        decanted: (Y/N)       

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 06/04/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

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

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALKANE	22.81	2	J ✓
2.	UNKNOWN	26.21	10	J ✓

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001 MS

Sample wt/vol: 470 (g/mL) ML

Lab File ID: S051105

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.                      COMPOUND                      (ug/L or ug/Kg) ug/L                      Q

108-95-2-----	Phenol		S
111-44-4-----	bis(2-Chloroethyl)ether	22	U
95-57-8-----	2-Chlorophenol		S
541-73-1-----	1,3-Dichlorobenzene	22	U
106-46-7-----	1,4-Dichlorobenzene		S
95-50-1-----	1,2-Dichlorobenzene	22	U
95-48-7-----	2-Methylphenol	22	U
108-60-1-----	2,2'-oxybis(2-Chloropropane)	22	U
106-44-5-----	4-Methylphenol	22	U
621-64-7-----	N-Nitroso-di-n-propylamine		S
67-72-1-----	Hexachloroethane	22	U
98-95-3-----	Nitrobenzene	22	U
78-59-1-----	Isophorone	22	U
88-75-5-----	2-Nitrophenol	22	U
105-67-9-----	2,4-Dimethylphenol	22	U
111-91-1-----	bis(2-Chloroethoxy)methane	22	U
120-83-2-----	2,4-Dichlorophenol	22	U
120-82-1-----	1,2,4-Trichlorobenzene		S
91-20-3-----	Naphthalene	22	U
106-47-8-----	4-Chloroaniline	22	U
87-68-3-----	Hexachlorobutadiene	22	U
59-50-7-----	4-Chloro-3-methylphenol		S
91-57-6-----	2-Methylnaphthalene	22	U
77-47-4-----	Hexachlorocyclopentadiene	22	U
88-06-2-----	2,4,6-Trichlorophenol	22	U
95-95-4-----	2,4,5-Trichlorophenol	55	U
91-58-7-----	2-Chloronaphthalene	22	U
88-74-4-----	2-Nitroaniline	55	U
131-11-3-----	Dimethylphthalate	22	U
208-96-8-----	Acenaphthylene	22	U
606-20-2-----	2,6-Dinitrotoluene	22	U
99-09-2-----	3-Nitroaniline	55	U
83-32-9-----	Acenaphthene		S

1C  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001 MS

Sample wt/vol: 470 (g/mL) ML

Lab File ID: S051105

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	Q
51-28-5-----	2,4-Dinitrophenol	55	U
100-02-7-----	4-Nitrophenol		S
132-64-9-----	Dibenzofuran	22	U
121-14-2-----	2,4-Dinitrotoluene		S
84-66-2-----	Diethylphthalate	22	U
7005-72-3-----	4-Chlorophenyl-phenylether	22	U
86-73-7-----	Fluorene	22	U
100-01-6-----	4-Nitroaniline	55	U
534-52-1-----	4,6-Dinitro-2-methylphenol	55	U
86-30-6-----	N-Nitrosodiphenylamine (1)	22	U
101-55-3-----	4-Bromophenyl-phenylether	22	U
118-74-1-----	Hexachlorobenzene	22	U
87-86-5-----	Pentachlorophenol		S
85-01-8-----	Phenanthrene	22	U
120-12-7-----	Anthracene	22	U
86-74-8-----	Carbazole	22	U
84-74-2-----	Di-n-butylphthalate	13	JB
206-44-0-----	Fluoranthene	22	U
129-00-0-----	Pyrene		S
85-68-7-----	Butylbenzylphthalate	2	J
91-94-1-----	3,3'-Dichlorobenzidine	22	U
56-55-3-----	Benzo(a)anthracene	22	U
218-01-9-----	Chrysene	22	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	9	JB
117-84-0-----	Di-n-octyl phthalate	22	U
205-99-2-----	Benzo(b)fluoranthene	22	U
207-08-9-----	Benzo(k)fluoranthene	22	U
50-32-8-----	Benzo(a)pyrene	22	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	22	U
53-70-3-----	Dibenz(a,h)anthracene	22	U
191-24-2-----	Benzo(g,h,i)perylene	22	U

(1) - Cannot be separated from Diphenylamine  
S: SPIKE COMPOUND

FORM 1 SV-2

3/90

000015

1B  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001 MSD

Sample wt/vol: 410 (g/mL) ML

Lab File ID: S051106

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture:        decanted: (Y/N)   

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

CAS NO. COMPOUND (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

1C  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029MSD

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001 MSD

Sample wt/vol: 410 (g/mL) ML

Lab File ID: S051106

Level: (low/med) LOW

Date Received: 05/02/92

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 05/05/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 05/12/92

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	14	JB
206-44-0-----	Fluoranthene	24	U
129-00-0-----	Pyrene		S
85-68-7-----	Butylbenzylphthalate	2	J
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	9	JB
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

FORM 1 SV-2

3/90

000017

## PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9205L195LAB: Lif WestonSITE: Cottsneck1.0 Data Completeness and Deliverables

YES NO N/A

1.1 Have any missing deliverables been received and added to the data package.   

ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.

1.2 Was SMD CCS checklist included with package?   2.0 Cover Letter/Case Narrative2.1 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 BVA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?  BVA data?  Pesticide/PCB data?  

ACTION: Complete corresponding parts of checklist.

000018

PART B: BVA 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 BVA holding times, determined from date of collection to date of extraction, been exceeded?

Samples for BVA 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 Analyzed
			Date Lab Received	Date Extracted	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

*Sum*  
 6.29.92

ACTION: If holding times are exceeded, flag all positive results as estimated ("J") and sample quantitation limits as estimated ("U"), 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 BVA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

- |              |                                     |   |                                     |
|--------------|-------------------------------------|---|-------------------------------------|
| a. Low Water | <input checked="" type="checkbox"/> | — | —                                   |
| b. Med Water | <input type="checkbox"/>            | — | <input checked="" type="checkbox"/> |
| c. Low Soil  | <input type="checkbox"/>            | — | <input checked="" type="checkbox"/> |
| d. Med Soil  | <input type="checkbox"/>            | — | <input checked="" type="checkbox"/> |

3.2 Are all the BVA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

- |              |                                     |   |                                     |
|--------------|-------------------------------------|---|-------------------------------------|
| a. Low Water | <input checked="" type="checkbox"/> | — | —                                   |
| b. Med Water | <input type="checkbox"/>            | — | <input checked="" type="checkbox"/> |
| c. Low Soil  | <input type="checkbox"/>            | — | <input checked="" type="checkbox"/> |
| d. Med Soil  | <input type="checkbox"/>            | — | <input checked="" type="checkbox"/> |

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 Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?

—  —

If yes, were samples reanalyzed?

—

Were method blanks reanalyzed?

—

ACTION: If all BVA 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 ("U").

000020

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?

YES	NO	N/A
	<input checked="" type="checkbox"/>	

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)

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

<input checked="" type="checkbox"/>		
-------------------------------------	--	--

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

<input checked="" type="checkbox"/>		
<input type="checkbox"/>		<input checked="" type="checkbox"/>
<input type="checkbox"/>		<input checked="" type="checkbox"/>
<input type="checkbox"/>		<input checked="" type="checkbox"/>

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?

<u>Water</u>	<u>Soils</u>
<u>8</u> out of 22	<u>20</u> out of 22

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

<u>Water</u>	<u>Soils</u>
<u>0</u> out of 11	<u>N/A</u> 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
--	-----	----	-----

Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

5.2 Frequency of Analysis: for the analysis of BVA 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?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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5.3 Has a BVA <sup>Method</sup> ~~instrument~~ blank been analyzed for each GS/MS system used.

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

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?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

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

5.0 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 BVAs? When applied as described below, the contaminant concentration in these blanks are multiplied by the sample Dilution Factor.

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-------------------------------------	--------------------------	--------------------------

6.2 Do any field/rinse blanks have positive BVA results (TCL and/or TIC)?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	-------------------------------------

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.

000022

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

YES NO N/A

Common Phthalate Esters	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & >10x 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
Other Contaminants	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5 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

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

6.3 Are there field/rinse/equipment blanks associated with every sample?

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

6.0 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)?

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

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

**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.

	YES	NO	N/A
DATE			
TIME			
INSTRUMENT			
SAMPLE NUMBERS			

*6-29-90*

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

- 7.4 Have the ion abundance criteria been met for each instrument used?

— —

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

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

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

—  —

- 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.)

— —

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

- 7.7 Are the spectra of the mass calibration compound acceptable?

— —

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

### 3.0 Target Compound List (TCL) Analytes

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

a. Samples and/or fractions as appropriate

— —

b. Matrix spikes and matrix spike duplicates

— —

c. Blanks

— —

000024

	YES	NO	N/A
8.2 Are the BVA 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	<input checked="" type="checkbox"/>	—	—
--	-------------------------------------	---	---

b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	<input checked="" type="checkbox"/>	—	—
--	-------------------------------------	---	---

c. Blanks	<input checked="" type="checkbox"/>	—	—
-----------	-------------------------------------	---	---

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

8.3 Are the response factors shown in the Quant Report?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—
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8.4 Is chromatographic performance acceptable with respect to:	<i>Quant ion</i>		
--	------------------	--	--

Baseline stability	<input checked="" type="checkbox"/>	—	—
--------------------	-------------------------------------	---	---

Resolution	<input checked="" type="checkbox"/>	—	—
------------	-------------------------------------	---	---

Peak shape	<input checked="" type="checkbox"/>	—	—
------------	-------------------------------------	---	---

Full-scale graph (attenuation)	<input checked="" type="checkbox"/>	—	—
--------------------------------	-------------------------------------	---	---

Other: _____	<input checked="" type="checkbox"/>	—	—
--------------	-------------------------------------	---	---

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

8.5 Are the lab-generated standard mass spectra of the identified BVA compounds present for each sample?	<input checked="" type="checkbox"/>	—	—
--	-------------------------------------	---	---

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?	<input checked="" type="checkbox"/>	—	—
---	-------------------------------------	---	---

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?	<input checked="" type="checkbox"/>	—	—
---	-------------------------------------	---	---

8.8 Do sample and standard relative ion intensities agree within 20%?	<input checked="" type="checkbox"/>	—	—
---	-------------------------------------	---	---

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected, flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected (at the calculated detection limit).

YES NO N/A

Tentatively Identified Compounds (TIC)

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

YES     NO     N/A

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate

YES     NO     N/A

b. Blanks

YES     NO     N/A

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 VQA TCL—and should not be reported as a TIC)?

YES     NO     N/A

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?

YES     NO     N/A

9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?

YES     NO     N/A

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.

D.D 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?

YES     NO     N/A

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?

YES     NO     N/A

000026

	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?

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 BVA fraction?

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

12.2 Are response factors stable for BVAs over the concentration range of the calibration (RSD <30%)?

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?

ACTION: Circle all outliers in red.

ACTION: If any BVA 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").

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.)

YES	NO	N/A
—	<input checked="" type="checkbox"/>	—

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 ENA fraction?

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

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

<input checked="" type="checkbox"/>	—	—
-------------------------------------	---	---

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

~~\_\_\_\_\_~~  
~~\_\_\_\_\_~~  
~~\_\_\_\_\_~~

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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?

—	<input checked="" type="checkbox"/>	—
---	-------------------------------------	---

ACTION: Circle all outliers in red.

ACTION: If any ENA 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%?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	—
-------------------------------------	--------------------------	---

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

% DIFFERENCE			YES	NO	N/A
25-50	50-90	>90			
'J' positive results, no action for non detects	'J' positive results, 'U' 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.)

—  —

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?

— —

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?

— —

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

5.0 Field Duplicates

YES NO N/A

15.1 Were any field duplicates submitted for BNA analysis?  YES  NO  N/A

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.

*Not FD*

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

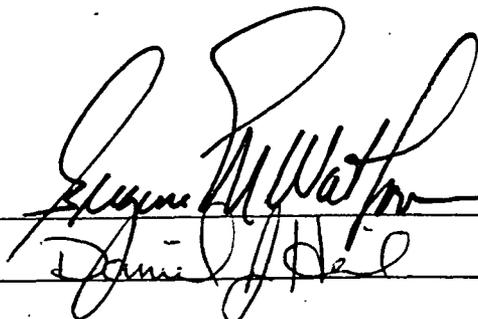
Case No. 92052195 SDG No. --- LABORATORY R. J. Watson SITE Cottsmuck

DATA ASSESSMENT:

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

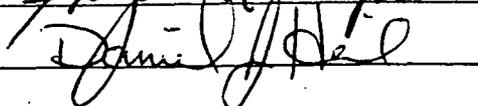
All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable), or "NJ" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Reviewer's  
Signature: \_\_\_\_\_



Date: 6/29/1992

Verified By: \_\_\_\_\_



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*

*[Signature]*  
6.29.92

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 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

*Di-n-butyl phthalate - CRD - All samples.  
bis(2-ethylhexyl) phthalate - All samples.*

B) Field or rinse blank contamination

*Not ID.*

C) Water blank contamination

*See above*

D) Trip blank contamination

*Not ID*

ATTACHMENT 1  
SOP NO. HW-6

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*

*[Signature]*  
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*

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

\* Cont. Cal. SOS1102 23-001-K029 MS, MSD  
J (>25% - 250%) 4-chloroaniline, 3-Nitroaniline, 2,4-Dinitrophenol,  
4-Nitrophenol, 4-Nitroaniline, Carbazole.

\* Cont. Cal. IN505 23-001-K229.  
J (>25% - 50%) 2,4-Dinitrophenol

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*

*[Signature]*  
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  $\pm 30$  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*

*[Signature]*  
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  $\pm 0.06$  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/ $\mu$ L in the final sample extract.

*No Action*

*[Signature]*  
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.

*Eight (8) recoveries were above QA/QC limits.  
No Action is required.*

*[Signature]*  
6.29.92

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

*No Action*

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

*Acceptable*

12. CONTRACT PROBLEMS  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*

*[Signature]*  
*6-29-92*

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9205L195

LABORATORY B. F. Weston

SDG NO. \_\_\_\_\_

DATA USER R. F. Weston

SOW: 3/90 News

REVIEW COMPLETION DATE 6-29-92

NO. OF SAMPLES 2 WATER \_\_\_\_\_ SOIL \_\_\_\_\_ OTHER \_\_\_\_\_

REVIEWER  ESD  ESAT  OTHER, CONTRACT/CONTRACTOR HeartlandESI

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	<u>0</u>	_____	_____
2. GC-MS TUNE/ GC PERFORMANCE	_____	<u>0</u>	_____	_____
3. INITIAL CALIBRATIONS	_____	<u>0</u>	_____	_____
4. CONTINUING CALIBRATIONS	_____	<u>0</u>	_____	_____
5. FIELD BLANKS ('F' = not applicable)	_____	<u>F</u>	_____	_____
6. LABORATORY BLANKS	_____	<u>0</u>	_____	_____
7. SURROGATES	_____	<u>0</u>	_____	_____
8. MATRIX SPIKE/DUPLICATES	_____	<u>0</u>	_____	_____
9. REGIONAL QC ('F' = not applicable)	_____	<u>F</u>	_____	_____
10. INTERNAL STANDARDS	_____	<u>0</u>	_____	_____
11. COMPOUND IDENTIFICATION	_____	<u>0</u>	_____	_____
12. COMPOUND QUANTITATION	_____	<u>0</u>	_____	_____
13. SYSTEM PERFORMANCE	_____	<u>0</u>	_____	_____
14. OVERALL ASSESSMENT	_____	<u>0</u>	_____	_____

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: \_\_\_\_\_

\_\_\_\_\_

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

SOP NO: HW-6  
 Date: February 1989

Type of Review: Region II CUP

Date: 6-29-92

Case #: 9205LAR

Project: Colts Neck

Lab Name: Lof Weston

Reviewer's Initials: JANN

Number of Samples: 2

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	2	0 / 30
H/N (50)	0	0	0	0	0	1	2	1 / 100
VOA (35)								
PEST (20)								
ICB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)	0	0	0	0	0	0	2	0 / 30
H/N (50)	0	0	0	4	0	0	2	4 / 100
VOA (35)								
PEST (20)								
ICB (7)								
TCDD (1)								

000044



# HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

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## 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 April 30 and May 1, 1992 at the **NWS Earle - ColtsNeck, NJ** site. There were two (2) water samples with no MS/MSD which were received and analyzed by Roy F. Weston Laboratory - Lionville in this analytical batch, **RFW Lot# 9205L195**.

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

000001

**SAMPLES AND FRACTIONS REVIEWED**

Roy F. Weston, Inc.

Sample Identifications

Analytical Fraction

<u>FIELD ID</u>	<u>LABORATORY ID</u>	<u>Matrix</u>	<u>PEST</u>
23-001-K029	9205L195-001	WATER	X
23-001-K229	9205L195-002	WATER	X

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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

000002

## DATA ASSESSMENT NARRATIVE

### PESTICIDE/AROCLOL 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.

Two (2) water samples with no MS/MSD were included in this analytical data package, RFW Lot # 9205L195. 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.

000003

## PESTICIDE/AROCLOR DATA ASSESSMENT NARRATIVE - Page 2

### 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 Method Blank.

Instrument Blanks showed no significant peaks within target compound retention time windows. 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.

No GPC Calibration information was required for the two water samples included in this data package.

000004

**Surrogate Recoveries**

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

**Specific Finding**

1. 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 water Bland Spike/Blank Spike Duplicate were within CLP MS/MSD QC limits. No MS/MSD was included in this package. No qualifications were required.

**Analyte Identification/Quantitation**

No positive results were reported for these samples for any target analytes. No additional qualifications were required.

## 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.

000006

## SUMMARY OF PESTICIDE/AROCLOR QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All	All	U	UJ	2

---

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

000007

1D  
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K029

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water) WATER

Lab Sample ID: 9205L195-001

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

Lab File ID: 05169235.31

% Moisture: decanted: (Y/N) \_

Date Received: 05/02/92

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 05/05/92

Concentrated Extract Volume: 10000.00(uL)

Date Analyzed: 05/19/92

Injection Volume: 0.5(uL)

Dilution Factor: 1.00

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

Sulfur Cleanup: (Y/N) N

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-62-3	Aroclor-1260	1.0	U

*Handwritten notes:*  
 UJ 1  
 For 5/29/92  
 (Two vertical arrows pointing downwards)

1D  
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

23-001-K229

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: (soil/water)WATER Lab Sample ID: 9205L195-002

Sample wt/vol: 990 (g/mL) ML Lab File ID: 05169235.32

% Moisture: decanted: (Y/N)    Date Received: 05/02/92

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

Concentrated Extract Volume: 10000.00(uL) Date Analyzed: 05/19/92

Injection Volume: 0.5(uL) Dilution Factor: 1.00

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11098-82-5	Aroclor-1260	1.0	U

UJ 1

DDE  
5/29/92

PACKAGE COMPLETENESS AND DELIVERABLES

RFW Lot #

CASE NUMBER: 9205L195

LAB: Roy F. Weston - Lionville

SITE: NWS - Earle / Colts Neck, NJ

1.0 Data Completeness and Deliverables

YES NO N/A

1.1 Have any missing deliverables been received and added to the data package.

ACTION: Call lab for explanation / resubmittal of any missing deliverables. If lab cannot provide them, note the effect on review of the package under the "Contract Problems/Non-compliance" section of reviewer narrative.

1.2 Was SMD 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 BVA analyses and Part C for Pesticide/PCBs.

Does this package contain:

VOA data?

BVA 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

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

YES NO N/A

3.3 Were outliers marked correctly with an asterisk?

ACTION: Circle all outliers in red.

3.4 Was surrogate (DBC) recovery outside of the contract specification for any sample or blank?

ACTION: No qualification is done if surrogates are diluted beyond detection. If recovery is below contract limit (but above zero), flag all results for that sample "J". If recovery is zero, flag positive results "J" and non-detects "R". If recovery for the blank is zero, flag non-detects for all associated samples "R". If recovery is above contract limit, flag all positive results for that sample "J", unless in the reviewers professional judgement the high recovery is due to co-eluting interference (check the associated blank - if recovery is high there also, flag the sample data).

*Both samples & Method Blank*

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)

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

*Blank Spike*

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water

b. Med Water

c. Low Soil

d. Med Soil

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

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

Water

Soils

0 out of 12

NA out of 12

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

YES NO N/A

Water

Soils

2 out of 6

NA out of 6

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

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present?

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

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

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

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

6.0 Contamination

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

*minor Endrin contamination  
no qualification*

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

6.2 Do any field/rinse blanks have positive PEST/PCB results?

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

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

6.3 Are there field/rinse/equipment blanks associated with every sample?

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

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data System Printouts for both Primary and Confirmation (confirmation standards not required if there are no positive results above CRQL) column present:

- a. Evaluation Standard Mix A
- b. Evaluation Standard Mix B
- c. Evaluation Standard Mix C
- d. Individual Standard Mix A
- e. Individual Standard Mix B
- f. Multi-component Pesticides Toxaphene & Chlordane
- g. Aroclors 1016/1260
- h. Aroclors 1221, 1232, 1242, 1248, and 1254

*Calibration as per 3/90 SOW*

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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%?

*within 3/90 limits*

—	[ ]	—
—	[ ]	—
—	[ ]	—

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 DOE are positive, flag the DDT non-detect "R".
  3. Flag positive DDD and DOE 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").

000015

	YES	NO	N/A
7.5 Is the linearity check RSD of all four calibration factors <10% for the quantitation column?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 %RSDs < 20%  
per 3/90 SOW.

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]) ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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.

~~All %RSDs < 25%~~ OS  
6/30/92

7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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.

as per 3/90 SOW

3.0 Pesticide/PCB Standards Summary

8.1 Is Form IX present and complete for each GC column and 72 hr sequence of analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ACTION: If no, take action specified in 3.2 above.

8.2 Are there any transcription/calculation errors between raw data and Form IX?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

8.3 Is DDT retention time for packed columns > 12 min (except OV-1 and OV-101 columns)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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ACTION: If no, check that there is adequate resolution between individual components. If not, flag results for compounds that interfere with each other (co-elute) "R".

8.4 Do all standard retention times fall within the windows established for the first IND A and IND B analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Forms 6E & 6F

**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".

YES NO N/A

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  $\leq$  25%  
as for 3/70 Saw

**ACTION:** If no, flag all associated positive results "J". Use professional judgement to determine whether or not to flag non-detects.

3.0 Pesticide/PCB Identification

9.1 Is Form X complete for every sample in which a pesticide or PCB was detected?

No target compounds 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).

alpha-chlorobenzene well below CRQL

no action

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
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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?

	<input checked="" type="checkbox"/>		
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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?

<input checked="" type="checkbox"/>	<input type="checkbox"/>		
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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?

<input checked="" type="checkbox"/>			
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- 11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?

<input checked="" type="checkbox"/>			
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- 11.3 Were early eluting peaks (for early eluting analytes) resolved to baseline?

<input checked="" type="checkbox"/>			
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ACTION: For 11.1 and 11.2, comment only. For 11.3, reject ("R") those analytes that are not sufficiently resolved.

000018

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12.0 Field Duplicates

YES NO N/A

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.

000019

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

RFW Lot#

Case No. 92054195 SDG No. 23-001-K029 LABORATORY Roy F. SITE NWS-Earle  
Weston Colts Neck, NJ

DATA ASSESSMENT:

Lionville

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: *Amistad D. Scardella*

Date: 6/30/1992

Verified By: *Paul B. Brady*

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.

*Both samples extracted & analyzed within  
holding times. No qualifications.*

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

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

A) Method blank contamination

*No confirmed hits near CRQL (<50%)  
minor Endrin peak ~ 0.02 µg/L*

B) Field or rinse blank contamination

*NA*

C) Water blank contamination

*NA*

D) Trip blank contamination

*NA*

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

*All initial % RSDs < 20%, all RPDs ≤ 25%  
for continuing calibrations. — per 3/90 SOW —  
No qualifications required.*

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.

*3 out of the eight surrogate recoveries for the two samples are below QC limit.*

*All reported non-detect results are qualified as estimated.*

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  $\pm 0.06$  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 confirmed peaks within RTWs.*

*No GC/MS 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.

*Blank Spike/BS Duplicates included, no MS/MSD.*

*All % Recoveries w/in QC limits*

*2 RPDs exceeded QC limits.*

*No. qualifications 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.*

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9205L195

LABORATORY Alex F. Weston - Lionville

SDG NO. 23-001-K029

DATA USER \_\_\_\_\_

SOW 3/90

REVIEW COMPLETION DATE 6/30/92

NO. OF SAMPLES 2 WATER \_\_\_\_\_ SOIL \_\_\_\_\_ OTHER \_\_\_\_\_

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

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	_____	_____	<u>0</u>	_____
2. GC-MS TUNE/ GC PERFORMANCE	_____	_____	<u>0</u>	_____
3. INITIAL CALIBRATIONS	_____	_____	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	_____	_____	<u>0</u>	_____
5. FIELD BLANKS (F = not applicable)	_____	_____	<u>F</u>	_____
6. LABORATORY BLANKS	_____	_____	<u>0</u>	_____
7. SURROGATES	_____	_____	<u>M</u>	_____
8. MATRIX SPIKE/DUPPLICATES	_____	_____	<u>0</u>	_____
9. REGIONAL QC (F = not applicable)	_____	_____	<u>F</u>	_____
10. INTERNAL STANDARDS	_____	_____	_____	_____
11. COMPOUND IDENTIFICATION	_____	_____	<u>0</u>	_____
12. COMPOUND QUANTITATION	_____	_____	<u>0</u>	_____
13. SYSTEM PERFORMANCE	_____	_____	<u>0</u>	_____
14. OVERALL ASSESSMENT	_____	_____	<u>M</u>	_____

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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

SOP NO: HW-6  
Date: February 1989

Type of Review: CLP 3/90 Saw NEESA D Info: 6/30/92

Project: NWS-Earle / C.H's Neck, NJ

Case #: 9205L175

Reviewer's Initials: CDS [Signature]

Lab Name: Rox F. Weston - Lionville

Number of Samples: 2

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Contamination	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)								
H/N (50)								
VIA (35)								
PEST (20)	0	0	0	0	0	0	2	0/40
ICM (7)	0	0	0	0	0	0	2	0/14
ICM (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VIA (35)								
PEST (20)	20x2	0	0	0	0	0	2	40/40
ICM (7)	7x2	0	0	0	0	0	2	14/14
ICM (1)								

000030



# HEARTLAND ENVIRONMENTAL SERVICES, INC.

P.O. BOX 163 ST. PETERS MO 63376

(314) 278-8232

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. Two (2) water sample and one (1) Matrix Spike and Duplicate pair were analysed by the Roy F. Weston Lionville Laboratory.

<u>Navy No.</u>	<u>RFW No.</u>
K029	920519501
K229	920519502

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.

000002



## 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# 9205195, the analysis of two (2) field water sample 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 Standard for Arsenic was below the lower control limit. All positive and non-detect results 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 recovery for Antimony was below 30%. All positive and non-detect results are rejected.
3. The Matrix Spike recoveries for Arsenic, Beryllium, Manganese, Nickel, Selenium, Silver, Thallium and Zinc were below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

000002

**Metals Data Assessment Narrative (continued - Page 2)****Duplicate**

4. The Duplicate analysis for Lead was outside the control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

**LCS**

No deficiencies in this section.

**Serial Dilution**

5. The Serial dilutions for Aluminum, Barium, Beryllium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Sodium and Vanadium were outside the control limit. All positive results are qualified as estimated, "J". Several of the elements were not flagged with an "E" as required by CLP Protocol.

**MSA**

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

<u>Analyte</u>	<u>Samples</u>
Selenium	K229.

**000003**



**SUMMARY OF DATA QUALIFICATIONS**

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	As	+/U	J/UJ	1
All water samples	Sb	+/U	R	2
All water samples	As, Be, Mn, Ni, Se, Ag, Tl and Zn.	+/U	J/UJ	3
All water samples	Pb	+/U	J/UJ	4
All water samples	Al, Ba, Be, Ca, Cr, Co, Cu, Fe, Mg, Mn, Ni, K, Na and V.	+	J	5
K229.	Se	+/U	J/UJ	6

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

QL - denotes data validation qualifier



1  
INORGANIC ANALYSIS DATA SHEET

K229

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

Lab Code: WESTON Case No.: N.W.S SAS No.: SDG No.: CLP195

Matrix (soil/water): WATER Lab Sample ID: 920519502

Level (low/med): LOW Date Received: 5/02/92

% 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	52.60	B	E	P	J5
7440-36-0	Antimony	36.00	U	N	P	R2
7440-38-2	Arsenic	2.00	U	N	F	UJ3
7440-39-3	Barium	7.00	U		P	
7440-41-7	Beryllium	1.00	U	N	P	UJ3
7440-43-9	Cadmium	4.00	U		P	
7440-70-2	Calcium	156.00	B	E	P	J5
7440-47-3	Chromium	7.00	U	E	P	
7440-48-4	Cobalt	7.00	U		P	
7440-50-8	Copper	7.00	U		P	
7439-89-6	Iron	47.80	B	*E	P	J5
7439-92-1	Lead	2.00	U		F	UJ4
7439-95-4	Magnesium	69.00	U	E	P	
7439-96-5	Manganese	2.00	U	NE	P	UJ3
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	18.00	U	N	P	UJ3
7440-09-7	Potassium	896.00	U	*E	P	
7782-49-2	Selenium	2.00	U	NW	F	UJ3, 6
7440-22-4	Silver	8.00	U	N	P	UJ3
7440-23-5	Sodium	176.00	B		P	J5
7440-28-0	Thallium	2.00	U	N	F	UJ3
7440-62-2	Vanadium	5.00	U	E	P	
7440-66-6	Zinc	9.80	B	N	P	J3
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:  
 Color After: COLORLESS Clarity After: CLEAR Artifacts:  
 Comments:

000006

U.S. EPA - CLP

5A  
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

K029 S

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

Lab Code: WESTON Case No.: N.W.S SAS No.: SDG No.: CLP195

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	145799.0000	157646.0000	2000.00	590.0		P
Antimony	75-125	74.3000	36.0000	500.00	14.9	N	P
Arsenic	75-125	115.0000	144.0000	40.00	73.0	N	F
Barium	75-125	1797.1000	98.2000	2000.00	84.9	B	P
Beryllium	75-125	69.2000	34.8000	50.00	68.8	N	P
Cadmium	75-125	57.6000	10.5000	50.00	94.2		P
Calcium							NR
Chromium		5332.3010	5679.0000	200.00	173.3		P
Cobalt	75-125	655.2000	240.2000	500.00	83.0		P
Copper	75-125	351.7000	141.3000	250.00	84.2		P
Iron		146773.1000	230284.4000	1000.00	8400.0		P
Lead		247.5000	395.0000	20.00	450.0		F
Magnesium							NR
Manganese	75-125	812.8000	468.7000	500.00	68.8	N	P
Mercury	75-125	1.1700	.1790	1.00	99.9	B	CV
Nickel	75-125	1086.9000	812.2000	500.00	54.9	N	P
Potassium							NR
Selenium	75-125	4.7000	2.0000	10.00	47.0	N	F
Silver	75-125	35.0000	8.0000	50.00	70.0	N	P
Sodium							NR
Thallium	75-125	32.2000	2.0000	50.00	64.4	N	F
Vanadium		3372.6000	3335.8000	500.00	7.4		P
Zinc	75-125	947.8000	587.3999	500.00	72.1	N	P
Cyanide							NR

Comments:

0000033

## U.S. EPA - CLP

5B  
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

K029 A

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

Lab Code: WESTON Case No.: N.W.S SAS No.: SDG No.: CLP195

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		105.00	23.00	120.0	87.5		P
Arsenic							NR
Barium							NR
Beryllium		87.90	34.80	70.0	75.9		P
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese		1182.80	468.70	950.0	75.2		P
Mercury							NR
Nickel		1996.30	812.20	1600.0	74.0		P
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc		1543.30	587.40	1200.0	79.7		P
Cyanide							NR

Comments:

FORM V (Part 2) - IN

000008

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## U.S. EPA - CLP

EPA SAMPLE NO.

6  
DUPLICATES

K029 D

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

Lab Code: WESTON Case No.: N.W.S SAS No.: SDG No.: CLP195

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		157646.0000	145289.1000	8.2		P
Antimony		36.0000 U	36.0000 U			P
Arsenic		144.0000	122.0000	16.5		F
Barium		98.2000 B	99.3000 B	1.1		P
Beryllium		34.8000	30.0000	14.8		P
Cadmium	5.0	10.5000	12.4000	16.6		P
Calcium	5000.0	16106.5000	16905.4000	4.8		P
Chromium		5679.0000	5382.6990	5.4		P
Cobalt	50.0	240.2000	251.1000	4.4		P
Copper		141.3000	153.9000	8.5		P
Iron		230284.4000	186739.0000	20.9	*	P
Lead		395.0000	170.0000	79.7	*	F
Magnesium	5000.0	22050.7000	18071.3000	19.8		P
Manganese		468.7000	445.5000	5.1		P
Mercury		.1710 B	.1220 B	33.5		CV
Nickel		812.2000	776.0000	4.6		P
Potassium		69125.6900	54326.0000	24.0	*	P
Selenium	5.0	16.0000	11.0000	37.0		F
Silver		8.0000 U	8.0000 U			P
Sodium	5000.0	4648.8010 B	5358.0000	14.2		P
Thallium		2.0000 U	2.0000 U			F
Vanadium		3335.8000	3172.1000	5.0		P
Zinc		587.3999	562.7000	4.3		P
Cyanide						NR

FORM VI - IN

03/90

000009

Title: Evaluation of Metals Data for the  
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Date: Feb. 1990  
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	YES	NO	N/A
A.1.1 <u>Contract Compliance Screening Report</u> (CCS) - Present?  <u>ACTION:</u> If no, contact RSCC.	[ ]	—	✓
A.1.2 <u>Record of Communication (from RSOC)</u> - Present?  <u>ACTION:</u> If no, request from RSCC.	[ ]	—	✓
A.1.3 <u>Trip Report</u> - Present and complete?  <u>ACTION:</u> If no, contact RSCC for trip report.	[ ]	—	✓
A.1.4 <u>Sample Traffic Report</u> - Present or on file?  Legible?	[ ]	—	✓
<u>ACTION:</u> If no, request from Regional Sample Control Center (RSCC).	[ ]	—	✓
A.1.5 <u>Cover Page</u> - Present?  Is cover page properly filled in and signed by the lab manager or the manager's designee?	[ ✓ ]	—	—
<u>ACTION:</u> 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?	[ ✓ ]	—	—
<u>ACTION:</u> If no for any of the above, contact RSCC for clarification.			

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	YES	NO	N/A
A.1.6 <u>Form I (Final Data)</u> - Are all Form I's present and complete? [ <input checked="" type="checkbox"/> ]		--	--
<u>ACTION:</u> 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?	[ <input checked="" type="checkbox"/> ]	--	--
Are soil sample results for each parameter corrected for percent solids?	[ <input type="checkbox"/> ]	--	[ <input checked="" type="checkbox"/> ]
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?	[ <input checked="" type="checkbox"/> ]	--	--
Are computation/transcription errors less than 10% of reported values?	[ <input checked="" type="checkbox"/> ]	--	--
Are all "less than IDL" values properly coded with "U"?	[ <input checked="" type="checkbox"/> ]	--	--
Was a brief physical description of samples given on Form I's?	[ <input checked="" type="checkbox"/> ]	--	--
Were the result qualifiers used correctly with final data?	[ <input checked="" type="checkbox"/> ]	--	--
<u>ACTION:</u> 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?	--	[ <input checked="" type="checkbox"/> ]	--
If yes, were dilutions noted on Form I's?	[ <input type="checkbox"/> ]	--	[ <input checked="" type="checkbox"/> ]
<u>ACTION:</u> 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?	--	[ <input checked="" type="checkbox"/> ]	--
Cyanide distillation (14 days) . . . . . exceeded?	--	[ <input type="checkbox"/> ]	[ <input checked="" type="checkbox"/> ]

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	YES	NO	N/A
Other Metals analysis (6 months). . . . exceeded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	-------------------------------------	--------------------------	--------------------------

Digestion Log for furnace AA Form XIII present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

Distillation Log for mercury Form XIII present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

Distillation Log for cyanides Form XIII present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------

Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

\*Weights, dilutions and volumes used to obtain values.

Percent solids calculation present for soils/sediments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------

Are preparation dates present on Digestion Log?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	-------------------------------------	--------------------------	--------------------------

A.1.8.2 Measurement read out record present?	ICP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	-----	-------------------------------------	--------------------------	--------------------------

	Flame AA	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	----------	--------------------------	--------------------------	-------------------------------------

	Furnace AA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	------------	-------------------------------------	--------------------------	--------------------------

	Mercury	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	---------	-------------------------------------	--------------------------	--------------------------

	Cyanides	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	----------	--------------------------	--------------------------	-------------------------------------

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	YES	NO	N/A
A.1.8.3 Are all raw data to support all sample analyses and QC operations present?	<input checked="" type="checkbox"/>	--	--
Legible?	<input checked="" type="checkbox"/>	--	--
Properly Labeled?	<input checked="" type="checkbox"/>	--	--

**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?	<input checked="" type="checkbox"/>	--	--
Is record of 5 point calibration present for Hg analysis?	<input checked="" type="checkbox"/>	--	--

**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?	<input type="checkbox"/>	--	<input checked="" type="checkbox"/>
Furnace AA?	<input checked="" type="checkbox"/>	--	--
Cyanides?	<input type="checkbox"/>	--	<input checked="" type="checkbox"/>

**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".

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YES NO N/A

**ACTION:** Flag associated data as estimated if standards are not within  $\pm 10\%$  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?	___	[ <input checked="" type="checkbox"/> ]	___
Cyanide Analysis?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>
Atomic Absorption Analysis?	___	[ <input checked="" type="checkbox"/> ]	___

**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?	[ <input checked="" type="checkbox"/> ]	___	___
Present and complete for AA and ICP when both are used for same analyte?	[ <input checked="" type="checkbox"/> ]	___	___

**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%	[ <input checked="" type="checkbox"/> ]	___	___
Hg - 80-120%	[ <input checked="" type="checkbox"/> ]	___	___
Cyanides 85-115%	[ <input type="checkbox"/> ]	___	<input checked="" type="checkbox"/>

\* The reviewer will calculate correlation coefficient.

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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 (U), 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?

YES  NO  N/A

**ACTION:** If no, flag the excess samples (eleventh and up) data as estimated (J).

Was ICV for cyanides distilled?

YES  NO  N/A

**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)?

YES  NO  N/A

?? \*Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis? ??

YES  NO  N/A

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.)

YES  NO  N/A

**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  $\pm$  CRDL
- ICP Analysis - \*\*True Value  $\pm$  2CRDL
- CN Analysis - \*\*True Value  $\pm$  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.

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	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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>ACTION:</b> 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is mid-range standard within control limits: Cyanide 80 - 120%R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>ACTION:</b> 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was an initial calibration blank analyzed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (whichever is more frequent)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>ACTION:</b> If no, prepare Telephone Record Log, contact laboratory and write in the contract-problems/non-compliance section of the Data Assessment Narrative.			

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	YES	NO	N/A
<b>ACTION:</b> 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?	<input checked="" type="checkbox"/>	---	---
<b>ACTION:</b> 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?	---	<input checked="" type="checkbox"/>	---
<b>ACTION:</b> If yes, reject (red-line) all associated data that has a concentration less than 10xCRDL.			
A.1.9.6 <u>Form IV (ICP Interference Check Sample)</u>			
A.1.9.6.1 Present and complete?	<input checked="" type="checkbox"/>	---	---
(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)?	<input checked="" type="checkbox"/>	---	---
<b>ACTION:</b> 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%)?	<input checked="" type="checkbox"/>	---	---
If no, is concentration of Al, Ca, Fe, or Mg lower than in ICS?	<input checked="" type="checkbox"/>	---	---
<b>ACTION:</b> 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").			

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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?  YES  NO  N/A
- each matrix type?  YES  NO  N/A
- each conc. range (i.e. low, med., high)?  YES  NO  N/A
- For both AA and ICP when both are used for same  
 analyte?  YES  NO  N/A

**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?  YES  NO  N/A

**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?  YES  NO  N/A

- If no, is sample concentration greater than or equal  
 to four times spike concentration?  YES  NO  N/A

**ACTION:** If yes, disregard spike recoveries for analytes  
 whose concentrations are greater than or equal  
 to four times spike added. If no, circle those  
 analytes on Form V for which sample concentration  
 is less than four times the spike concentration.

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	YES	NO	N/A
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	[ <input checked="" type="checkbox"/> ]	___	___

**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:

(a) less than 30%?	<input checked="" type="checkbox"/>	[ <input type="checkbox"/> ]	___
(b) between 30-74%?	<input checked="" type="checkbox"/>	[ <input type="checkbox"/> ]	___
(c) between 126-150%?	___	[ <input checked="" type="checkbox"/> ]	___
(d) greater than 150%?	___	[ <input checked="" type="checkbox"/> ]	___

**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:

(a) less than 10%?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>
(b) between 10-74%?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>
(c) between 126-200%?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>
(d) greater than 200%?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>

**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".

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	YES	NO	N/A
<b>.1.9.8 Form VI (Lab Duplicates)</b>			
<b>.1.9.8.1 Present and complete for:</b>			
each 20 samples?	<input checked="" type="checkbox"/>	___	___
each matrix type?	<input checked="" type="checkbox"/>	___	___
each concentration range (i.e. low, med., high)?	<input checked="" type="checkbox"/>	___	___
both AA and ICP when both are used for same analyte?	<input type="checkbox"/>	___	<input checked="" type="checkbox"/>
<b>ACTION:</b> If no for any the above, flag as estimated (J) all data >CRDL* for which duplicate sample was not analyzed.			
<b>Note:</b> 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.			
<b>A.1.9.8.2 Was field blank used for duplicate analysis?</b>	___	<input checked="" type="checkbox"/>	___
<b>ACTION:</b> If yes, flag all data >CRDL* as estimated (J) for which field blank was used as duplicate.			
<b>NOTE:</b> Duplicate analysis should be performed on a field blank when it is the only aqueous sample in SDG.			
<b>A.1.9.8.3 Are all values within control limits (RPD 20% or difference &lt; ±CRDL)?</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	___
If no, are all results outside the control limits flagged with an * on Form I's and VI?	<input checked="" type="checkbox"/>	___	___
<b>ACTION:</b> If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			
<b>NOTE:</b> 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.

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	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?		<input checked="" type="checkbox"/>	
<u>ACTION:</u> If yes, flag the associated data as estimated (J).			
A.1.9.8.5 <u>Aqueous</u> 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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?		<input checked="" type="checkbox"/>	
<u>ACTION:</u> If yes, flag the associated data as estimated.			
A.1.9.8.6 <u>Soil/Sediment</u> 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%?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) :			
> 2x*CRDL?		<input type="checkbox"/>	<input checked="" type="checkbox"/>
* Substitute IDL for CRDL when IDL > CRDL.			
** Use absolute values of sample and duplicate to calculate the difference.			

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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.

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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.

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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?                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| each matrix type?                          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| each concentration range (i.e. low, med.)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**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  $\geq$  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%?       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| $\geq$ 100%? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

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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 Absorption (AA) CC 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.

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	YES	NO	N/A
A.1.9.13 <u>Form VIII (Method of Standard Addition Results)</u>			
A.1.9.13.1 Present?	[ <input checked="" type="checkbox"/> ]	__	__
If no, is any Form I result coded with "S" or a "+"?	__	[ <input checked="" type="checkbox"/> ]	__
<u>ACTION:</u> 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?	__	[ <input checked="" type="checkbox"/> ]	__
<u>ACTION:</u> If yes, reject (red-line) affected data.			
A.1.9.13.3 Was *MSA required for any sample but not performed?	__	[ <input checked="" type="checkbox"/> ]	__
Is coefficient of correlation for MSA less than 0.995?	__	[ <input checked="" type="checkbox"/> ]	__
Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	__	[ <input checked="" type="checkbox"/> ]	__
<u>ACTION:</u> 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?	[ <input checked="" type="checkbox"/> ]	__	__
<u>ACTION:</u> If no, note exception under contract problem/ non-compliance of data assessment narrative, or prepare a separate list.			
A.1.9.14 <u>Dissolved/Total or Inorganic/Total Analytes -</u>			
A.1.9.14.1 Were any analyses performed for dissolved as well as total analytes on the same sample(s).	__	[ <input checked="" type="checkbox"/> ]	__
Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	__	[ <input checked="" type="checkbox"/> ]	__

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

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	YES	NO	N/A
<b>NOTE:</b> 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%?	—	[ ]	✓
<b>ACTION:</b> 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".

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	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?	___	[ <input checked="" type="checkbox"/> ]	___
(b) all analytes analyzed by GFAA?	___	[ <input checked="" type="checkbox"/> ]	___
(c) all analytes analyzed by AA Flame?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>
(d) Mercury?	___	[ <input checked="" type="checkbox"/> ]	___
(e) Cyanide?	___	[ <input type="checkbox"/> ]	<input checked="" type="checkbox"/>

**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.

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----- 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.

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	YES	NO	N/A
<b>A.1.9.17.3 <u>Form XI (Linear Ranges)</u></b>			
Was any sample result higher than high linear range of ICP.	—	<input checked="" type="checkbox"/>	—
Was any sample result higher than the highest calibration standard for non-ICP parameters?	—	<input checked="" type="checkbox"/>	—
If yes for any of the above, was the sample diluted to obtain the result on Form I?	<input checked="" type="checkbox"/>	—	—
<b>ACTION:</b> If no, flag the result reported on Form I as estimated(J).			
<b>A.1.9.18 <u>Percent Solids of Sediments</u></b>			
Is soil content in sediment(s) less than 50%?	—	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>ACTION:</b> If yes, qualify as estimated all data not previously rejected or flagged due to other QC criteria.			

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Appendix A.2: Data Assessment Narrative

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Case# N, W, S. Site Naval Weapons Station Matrix: Soil       
SDG# CLP 195 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 standard for Arsenic was above upper control limit. All positive results near the CRDL ( $\pm 2x$ ) are qualified as estimated, "J".
2. The Matrix Spike recovery for Antimony was below 30%. All data rejected.
3. The Matrix Spike recoveries for Arsenic, Beryllium, Manganese, Nickel, Selenium, Silver, Thallium and Zinc were below the lower control limit. All data is qualified as estimated.
4. The Duplicate analysis for Lead was greater than 50%. All data is qualified as estimated.
5. The Serial Dilutions for Aluminum, Barium, Beryllium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Sodium and Vanadium were outside the control limits. All positive results are qualified.

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~~as estimated~~

~~PBH 6/29/92~~

4.2.2 Contract-Problems/Non-Compliance

~~Several elements were not flagged "E"  
even though they were greater than 50 times  
the IDL and outside of the 10%  
rule.~~

~~PBH 6/29/92~~

MMB Reviewer: \_\_\_\_\_ Date: \_\_\_\_\_

Signature

Contractor Reviewer: Paul B. Harty Date: 6/29/92

Signature

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

LABORATORY: Roy F. Weston CASE NO. N.W.S. SOW NO. 390 SAMPLE TYPE/SDG: CLP 195

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: K029 and K229

FIELD DUP. #'S: \_\_\_\_\_ LAB DUP. #'S: K029 Field Blank \_\_\_\_\_ MATRIX SPIKE #: K029

SERIAL DILUTION SAMPLE NO. K029 COMPLETION DATE: 6/29/72 REVIEWERS INITIALS: PBH

Parameter	Detection Limits		Field Blank	Calib. Ver. XR			CRDL Std Ver. XR		Calibration Blanks			P B R L E A P N	ICP ICS XR		M S t p r k	Lab Dup RPD Diff	LCS XR	Ser Dil X D	M e c h				
	UG/L	IDL		Continued			Init	Fin	Continued				Init	Fin									
				1	2	3			1	2	3												
	CRDL	IDL		Init	1	2	3	Init	Fin	Init	1		2	3						Init	Fin		
Al	200	29	NA	106	104	101	100			U	U	U	U	U	109	106	54	8	99	(19)	P		
Sb	60	31		103	101	103	100	106	97	U	U	U	U	U			(15)		99			P	
As	10	1		100	101	99	100	(123)		U	U	U	U	U			(73)	17	100			F	
Ba	200	6		104	101	102	99			U	U	U	U	U	110	107	85	1	97	(25)	P		
Be	5	1		103	101	101	99	96	99	U	U	U	U	U	111	109	(69)	15	97	(28)	P		
Cd	5	4		105	105	102	93	96	108	U	U	U	U	U	110	109	94	17	104	(32)	P		
Cs	5000	62		105	104	104	102			U	U	U	U	U	108	106		5	100	(18)	P		
F	10	5		101	98	102	99	107	110	U	U	U	U	U	113	111	173	5	97	(18)	P		
Co	50	4		101	99	102	108	103	101	U	U	7.5	U	U	114	112	83	4	98	(21)	P		
Cu	25	2		100	98	100	98	100	98	U	U	U	U	U	112	104	84	9	96	(26)	P		
Fe	100	30		101	100	101	99			U	U	U	U	U	107	105	840	(2)	97	(17)	P		
Mg	3	1		104	103	104	105	100		U	U	U	U	U			450	(80)	99			F	
Mn	5000	52		103	102	102	101			U	U	U	U	U	107	105		20	99	(19)	P		
Mn	15	2		101	99	100	99	102	99	U	U	U	U	U	111	102	(69)	5	97	(17)	P		
Hg	0.2	.04		100	96					U	U			U			100	34	106			CV	
Ni	40	8		100	97	100	98	95	94	U	U	U	U	U	109	107	(55)	5	97	(18)	P		
R	5000	820		104	100	101	97			U	U	U	U	U						(2)	98	(17)	P
Se	5	2		104	101	99	100	108		U	U	U	U	U			(47)	37	103			F	
Ag	10	4		100	99	101	99	86	91	U	U	U	U	U	108	106	(70)		97			P	
Na	5000	67		103	101	101	99			U	U	U	U	U				14	97	(27)	P		
	10	1		101	101	101	103	95		U	U	U	U	U			(64)		103			F	
V	50	6		102	100	101	99	90	91	U	U	U	U	U	111	104	7.4	5	97	(19)	P		
Zn	20	6	✓	99	98	102	100	92	90	U	U	U	U	U	114	112	(72)	4	98	(11)	P		

LABORATORY: Roy F. Weston CASE NO. N.W.S. SOW NO. 390 SAMPLE TYPE/SDG: CLP 195

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: K029 and K229

FIELD DUP. #'S: \_\_\_\_\_ LAB DUP. #'S: K029 Field Blank \_\_\_\_\_ MATRIX SPIKE #: K029

SERIAL DILUTION SAMPLE NO. K029 COMPLETION DATE: 6/29/92 REVIEWERS INITIALS: PBH

Parameter	Detection Limits UG/L		Field Blank	Calib. Ver. XR			CRDL Std Ver. XR		Calibration Blanks			P B R L E A P N	ICP ICS XR		M S t p r i x k	Lab Dup RPD DIE	LCS XR	Ser Dil Z D	M e t h
	CRDL	IDL		Continued			Init	Fin	Continued				Init	Fin					
				1	2	3			1	2	3								
	IIA	IIB		III	IV	V	VI	VII	IX										
Al	200	29															98		P
Sb	60	31															98		P
As	10	1							U	U							101		F
Ba	200	6															97		P
Be	5	1															96		P
Cd	5	4															103		P
Cr	5000	62															100		P
Cu	10	5															96		P
Cu	50	4															97		P
Co	25	2															95		P
Co	100	30															96		P
Pb	3	1	1	104	104	104	105	63	U	U	U	U					100		F
Mn	5000	52															98		P
Mn	15	2															96		P
Hg	0.2	104															105		CV
Ni	40	8															95		P
K	5000	820															95		P
Se	5	2							U	U							103		F
Ag	10	4															96		P
Na	5000	67															96		P
Na	10	1															101		F
V	50	6															96		P
Zn	20	6															97		P

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Title: Evaluation of Metals Data for the  
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 Appendix A.7: CLP Data Assessment Checklist  
 Inorganic Analysis

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INORGANIC REGIONAL DATA ASSESSMENT

Region II

CASE NO. N.W.S.  
 LABORATORY Roy F. Weston  
 SDG# CLP 195  
 SOW# 390  
 DPO: ACTION \_\_\_\_\_ FYI \_\_\_\_\_

SITE Naval Weapons Station  
 NO. OF SAMPLES/  
 MATRIX 2 waters  
 REVIEWER (IF NOT ESD) Heartland ESI  
 REVIEWER'S NAME Paul B. Humby  
 COMPLETION DATE 6/29/92

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CYANIDE
1. HOLDING TIMES	<u>0</u>	<u>0</u>	<u>0</u>	<u>NR</u>
2. CALIBRATIONS	<u>0</u>	<u>0</u>	<u>0</u>	
3. BLANKS	<u>0</u>	<u>0</u>	<u>0</u>	
4. ICS	<u>0</u>	<u>0</u>	<u>0</u>	
5. LCS	<u>0</u>	<u>0</u>	<u>0</u>	
6. DUPLICATE ANALYSIS	<u>0</u>	<u>0</u>	<u>0</u>	
7. MATRIX SPIKE	<u>2</u>	<u>0</u>	<u>0</u>	
8. MSA	<u>0</u>	<u>0</u>	<u>0</u>	
9. SERIAL DILUTION	<u>0</u>	<u>0</u>	<u>0</u>	
10. SAMPLE VERIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	
11. OTHER QC	<u>0</u>	<u>0</u>	<u>0</u>	
12. OVERALL ASSESSMENT	<u>0</u>	<u>0</u>	<u>0</u>	

0 = 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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_