



Data Validation Report

March 5, 1992

Prepared for

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This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 31, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were four (4) 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 9110L235**.

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

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>VOA</u>
03-006-M002	9110L235-001	WATER	X
03-006-M002MS	9110L235-001	WATER	X
03-006-M002MSD	9110L235-001	WATER	X
03-006-M202	9110L235-002	WATER	X
03-005-M002	9110L235-003	WATER	X
03-006-M302	9110L235-004	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Gene Watson	Dan Heil



DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 2/88 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 and RRFs. No qualifications are required.

Continuing Calibrations

The two (2) continuing calibrations that were analyzed with this data package was acceptable for all TCL %Ds and RRFs. No qualifications are required.

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.



DATA ASSESSMENT NARRATIVE

VOLATILE ANALYSIS

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Method Blanks

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

Specific Findings:

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

methylene chloride - CRQL: All samples

acetone - U: All samples except 03-006-M002

acetone - NA: 03-006-M002

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)

The MS/MSD results were acceptable for all of the spiking compounds and %RPDs. No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

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



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
All samples	methylene chloride	+BJ	CRQL	1
All samples except 03-006-M002	acetone	+B	U	1
03-006-M002	acetone	+B	NA	1

* DL denotes the Form I qualifier supplied by the laboratory

QL denotes the qualifier used by the data validation firm

+ in the DL column denotes a positive result

- in the DL column denotes a non detect result

1A
VOLATILE ORGANICS ANALYSIS SHEET

0000020

CLIENT SAMPLE NO.

03-006-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-001

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

Lab File ID: W110515

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. _____

Date Analyzed: 11/05/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	(ug/L or ug/Kg) <u>ug/L</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	52	U
67-64-1	Acetone	140	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0000027

CLIENT SAMPLE NO.

03-006-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-001

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

Lab File ID: W110515

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. _____

Date Analyzed: 11/05/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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 SHEET

0000030

CLIENT SAMPLE NO.

03-006-M202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-002
 Sample wt/vol: 5.00 (g/mL) ML Lab File ID: W110604
 Level: (low/med) LOW Date Received: 10/31/91
 % Moisture: not dec. Date Analyzed: 11/06/91
 Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	ug/L
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	52	U
67-64-1	Acetone	80	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

0009

1E
 VOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

0000037

CLIENT SAMPLE NO.

03-006-M202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-002

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

Lab File ID: W110604

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. _____

Date Analyzed: 11/06/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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 SHEET

0000047

CLIENT SAMPLE NO.

03-005-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-003

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

Lab File ID: W110517

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. _____

Date Analyzed: 11/05/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

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	51	U
67-64-1	Acetone	54	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0000042

CLIENT SAMPLE NO.

03-005-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-003

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

Lab File ID: W110517

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. _____

Date Analyzed: 11/05/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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 SHEET

0000052

CLIENT SAMPLE NO.

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

03-006-M302

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-004
 Sample wt/vol: 5.00 (g/mL) ML Lab File ID: W110518
 Level: (low/med) LOW Date Received: 10/31/91
 % Moisture: not dec. _____ Date Analyzed: 11/06/91
 Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</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	U
67-64-1	-----Acetone	12	U
75-15-0	-----Carbon Disulfide	5	U
75-35-4	-----1,1-Dichloroethene	5	U
75-34-3	-----1,1-Dichloroethane	5	U
540-59-0	-----1,2-Dichloroethene (total)	5	U
67-66-3	-----Chloroform	5	U
107-06-2	-----1,2-Dichloroethane	5	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	5	U
56-23-5	-----Carbon Tetrachloride	5	U
108-05-4	-----Vinyl Acetate	10	U
75-27-4	-----Bromodichloromethane	5	U
78-87-5	-----1,2-Dichloropropane	5	U
10061-01-5	-----cis-1,3-Dichloropropene	5	U
79-01-6	-----Trichloroethene	5	U
124-48-1	-----Dibromochloromethane	5	U
79-00-5	-----1,1,2-Trichloroethane	5	U
71-43-2	-----Benzene	5	U
10061-02-6	-----Trans-1,3-Dichloropropene	5	U
75-25-2	-----Bromoform	5	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	5	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5	U
108-88-3	-----Toluene	5	U
108-90-7	-----Chlorobenzene	5	U
100-41-4	-----Ethylbenzene	5	U
100-42-5	-----Styrene	5	U
1330-20-7	-----Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0000053

CLIENT SAMPLE NO.

03-006-M302

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: W110518

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. _____ Date Analyzed: 11/06/91

Column: (pack/cap) PACK Dilution Factor: 1.00

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 SHEET

0000126

CLIENT SAMPLE NO.

03-006-M002MS

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-001 MS

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

Lab File ID: W110605

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. _____

Date Analyzed: 11/06/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</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	1	JB
67-64-1	-----Acetone	160	B
75-15-0	-----Carbon Disulfide	5	U
75-35-4	-----1,1-Dichloroethene		S
75-34-3	-----1,1-Dichloroethane	5	U
540-59-0	-----1,2-Dichloroethene (total)	5	U
67-66-3	-----Chloroform	5	U
107-06-2	-----1,2-Dichloroethane	5	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	5	U
56-23-5	-----Carbon Tetrachloride	5	U
108-05-4	-----Vinyl Acetate	10	U
75-27-4	-----Bromodichloromethane	5	U
78-87-5	-----1,2-Dichloropropane	5	U
10061-01-5	-----cis-1,3-Dichloropropene	5	U
79-01-6	-----Trichloroethene		S
124-48-1	-----Dibromochloromethane	5	U
79-00-5	-----1,1,2-Trichloroethane	5	U
71-43-2	-----Benzene		S
10061-02-6	-----Trans-1,3-Dichloropropene	5	U
75-25-2	-----Bromoform	5	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	5	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5	U
108-88-3	-----Toluene		S
108-90-7	-----Chlorobenzene		S
100-41-4	-----Ethylbenzene	5	U
100-42-5	-----Styrene	5	U
1330-20-7	-----Xylene (total)	5	U

S: SPIKE COMPOUND

FORM 1 V-1

12/88 Rev.

0015

1A
VOLATILE ORGANICS ANALYSIS SHEET

0000137

CLIENT SAMPLE NO.

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

03-006-M002MSD

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-001 MSD

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: W110606

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. _____ Date Analyzed: 11/06/91

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

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	B
67-64-1	-----Acetone	210	
75-15-0	-----Carbon Disulfide	5	U
75-35-4	-----1,1-Dichloroethene		S
75-34-3	-----1,1-Dichloroethane	5	U
540-59-0	-----1,2-Dichloroethene (total)	5	U
67-66-3	-----Chloroform	5	U
107-06-2	-----1,2-Dichloroethane	5	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	5	U
56-23-5	-----Carbon Tetrachloride	5	U
108-05-4	-----Vinyl Acetate	10	U
75-27-4	-----Bromodichloromethane	5	U
78-87-5	-----1,2-Dichloropropane	5	U
10061-01-5	-----cis-1,3-Dichloropropene	5	U
79-01-6	-----Trichloroethene		S
124-48-1	-----Dibromochloromethane	5	U
79-00-5	-----1,1,2-Trichloroethane	5	U
71-43-2	-----Benzene		S
10061-02-6	-----Trans-1,3-Dichloropropene	5	U
75-25-2	-----Bromoform	5	U
108-10-1	-----4-Methyl-2-pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	5	U
79-34-5	-----1,1,2,2-Tetrachloroethane	5	U
108-88-3	-----Toluene		S
108-90-7	-----Chlorobenzene		S
100-41-4	-----Ethylbenzene	5	U
100-42-5	-----Styrene	5	U
1330-20-7	-----Xylene (total)	5	U

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

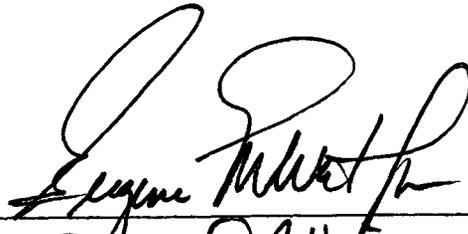
Case No. 91/06235 SDG No. — LABORATORY R. F. W. SITE COLTSNECK

DATA ASSESSMENT:

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

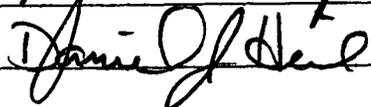
All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "U" (non-detects), "R" (unusable), or "NJ" (presumptive evidence for the presence of the material at an estimated value). All action is detailed on the attached sheets.

Reviewer's
Signature:



Date: 3/2 / 1992

Verified By:



Date: 3/2 / 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

gmm
3-2-92

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

CH₂Cl₂ - CRQL - 001, 003, 004, 002

Acetone - U - 002, 003, 004

Acetone - NA - 001

B) Field or rinse blank contamination

C) Water blank contamination

D) Trip blank contamination

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

Sum
3-2-92

DATA ASSESSMENT:

4. CALIBRATION:

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

A) RESPONSE FACTOR:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 either in the initial or continuing calibration. A value < 0.05 indicates a serious detection and quantitation problem. Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be qualified as rejected, "R".

The Action

[Signature]
7-2-92

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

No Action

EW
2-2-92

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

EW
3-2-92

DATA ASSESSMENT:

7. INTERNAL STANDARDS PERFORMANCE:

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

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

No Action

[Signature]
3-2-92

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

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

B) PESTICIDE FRACTION:

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

No Action

gmm
3-2-92

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

Sum
3-2-92

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

very good

12. CONTRACT PROBLEMS ~~of~~ NON-COMPLIANCE:

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

None

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9110L231

LABORATORY R. F. Weston - Louisville

SDG NO. _____

DATA USER R. F. Weston

SOW 2/8/92

REVIEW COMPLETION DATE 3-2-92

NO. OF SAMPLES 4 WATER _____ SOIL _____ OTHER _____

REVIEWER ESD ESAT OTHER, CONTRACT/CONTRACTOR Alan Hunt

	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: CUP VOA Region II
 Project: Colts Neck Date: 3-2-92
 Reviewer's Initials: MM Lab Name: H. Weston
 Case #: 9110235
 Number of Samples: 4

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	0	0	0	0	4	0/140
PEST (20)								
ECI (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VOA (35)	0	0	0	8	0	0	4	8/140
PEST (20)								
ECI (7)								
TCDD (1)								

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 91102235LAB: Rt WestonSITE: Cottsmere1.0 Data Completeness and Deliverables

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

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

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 OCS checklist included with package?

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

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

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

.2 Are Case Number and/or SAS number contained in the Narrative or Cover Letter?

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

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?

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

BVA data?

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

Pesticide/PCB data?

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

ACTION: Complete corresponding parts of checklist.

YES NO N/A

PART A: VOA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

ACTION: If no, contact lab for replacement of missing or illegible copies.

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special 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 Analyzed
			Date Sampled	Date Lab Received	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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").

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

3.2 Are all the VOA 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"/>	—	X
c. Low Soil	<input type="checkbox"/>	—	X
d. Med Soil	<input type="checkbox"/>	—	X

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

3.3 Were outliers marked correctly with an asterisk? — X

ACTION: Circle all outliers in red.

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

If yes, were samples reanalyzed? — X

Were method blanks reanalyzed? — X

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

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

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?

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

<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: 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	_____ 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	_____ 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
<u>5.0 Blanks (Form IV)</u>			
5.1 Is the Method Blank Summary (Form IV) present?	<input checked="" type="checkbox"/>	—	—
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?	<input checked="" type="checkbox"/>	—	—
5.3 Has a VOA instrument blank been analyzed at least once every twelve hours for each GC/MS system used?	<input checked="" 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"/>	—	—
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 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

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

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

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

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

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.

				YES	NO	N/A
DATE	TIME	INSTRUMENT	SAMPLE NUMBERS			

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.

B.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

— —

b. Matrix spikes and matrix spike duplicates

— —

c. Blanks

— 0036

	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"/>	___
Quant ion			
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
<u>9.0 Tentatively Identified Compounds (TIC)</u>			
9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "J" qualifier?	<input checked="" type="checkbox"/>	—	—
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	<input checked="" type="checkbox"/>	—	—
b. Blanks	<input checked="" type="checkbox"/>	—	—
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 <u>identified</u> 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)?	—	<input checked="" type="checkbox"/>	—
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?	<input checked="" type="checkbox"/>	—	—
9.5 Do TIC and "best match" standard relative ion intensities agree within 20%?	<input checked="" type="checkbox"/>	—	—
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?	—	<input checked="" type="checkbox"/>	—
10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

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 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").

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

— —

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?

— —

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

— —

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

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

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

— —

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%?

— —

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.) ___ [X] ___

ACTION: Circle errors in red.

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

4.0 Internal Standards (Form VIII)

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

ACTION: List all the outliers below.

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

(Attach additional sheets if necessary.)

ACTION: If the internal standard area count is outside the upper or lower limit, flag with "J" all positive results and non-detects (U values) quantitated with this internal standard. If extremely low area counts are reported, or if performance exhibits a major abrupt drop off, flag all associated non-detects as unusable ("R").

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

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

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.



Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 31, 1991 at the **NWS Earle-Coltsneck 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 9110L235**.

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

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>SVOA</u>
03-006-M002	9110L235-001	WATER	X
03-006-M002MS	9110L235-001	WATER	X
03-006-M002M6D	9110L235-001	WATER	X
03-006-M202	9110L235-002	WATER	X
03-005-M002	9110L235-003	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
VOA -	Volatile Analysis	Dan Heil	Gene Watson



DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 2/88 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 two (2) initial calibrations that were analyzed by the laboratory for these samples was acceptable for all compound %RSDs and RRFs.

Continuing Calibrations

The one (1) continuing calibration that was analyzed with the sample in this data package was acceptable for all TCL RRFs.

Specific findings:

1. For all the samples, the continuing calibration, S111302, contained the following compounds with %DS greater than 25%, but less than 50%. Qualify all positive results for these compounds as estimated (J).
 - 4-nitrophenol
 - 4-nitroaniline



DATA ASSESSMENT NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Internal Standards

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

Method Blanks

The one (1) extraction blank that was analyzed exhibited contamination for di-n-butyl phthalate and bis(2-ethylhexyl)phthalate. 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:

2. The following samples have been qualified for di-n-butyl phthalate and bis(2-ethylhexyl)phthalate blank contamination. The qualifications are for all the blanks.

di-n-butylphthalate - CRQL: All samples

bis(2-ethylhexyl)phthalate - CRQL: All samples

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

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)

The MS/MSD recoveries and %RPDs for the spiking compounds was acceptable. No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.



DATA ASSESSMENT NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

System Performance and Overall Assessment

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



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
All samples	4-nitrophenol 4-nitroaniline	+	J	1
All samples	di-n-butyl- phthalate	+JB	CRQL 2	
All samples	bis(2-ethyl- hexyl)phthalate	+JB	CRQL 2	
All samples	TICs	JB	R	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

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000027

CLIENT SAMPLE NO.

03-006-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-001

Sample wt/vol: 810 (g/mL) ML Lab File ID: S111306

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
108-95-2	Phenol	12	U
111-44-4	bis(2-Chloroethyl)ether	12	U
95-57-8	2-Chlorophenol	12	U
541-73-1	1,3-Dichlorobenzene	12	U
106-46-7	1,4-Dichlorobenzene	12	U
100-51-6	Benzyl alcohol	12	U
95-50-1	1,2-Dichlorobenzene	12	U
95-48-7	2-Methylphenol	12	U
108-60-1	bis(2-Chloroisopropyl)ether	12	U
106-44-5	4-Methylphenol	12	U
621-64-7	N-Nitroso-Di-n-propylamine	12	U
67-72-1	Hexachloroethane	12	U
98-95-3	Nitrobenzene	12	U
78-59-1	Isophorone	12	U
88-75-5	2-Nitrophenol	12	U
105-67-9	2,4-Dimethylphenol	12	U
65-85-0	Benzoic acid	60	U
111-91-1	bis(2-Chloroethoxy)methane	12	U
120-83-2	2,4-Dichlorophenol	12	U
120-82-1	1,2,4-Trichlorobenzene	12	U
91-20-3	Naphthalene	12	U
106-47-8	4-Chloroaniline	12	U
87-68-3	Hexachlorobutadiene	12	U
59-50-7	4-Chloro-3-methylphenol	12	U
91-57-6	2-Methylnaphthalene	12	U
77-47-4	Hexachlorocyclopentadiene	12	U
88-06-2	2,4,6-Trichlorophenol	12	U
95-95-4	2,4,5-Trichlorophenol	60	U
91-58-7	2-Chloronaphthalene	12	U
88-74-4	2-Nitroaniline	60	U
131-11-3	Dimethylphthalate	12	U
208-96-8	Acenaphthylene	12	U
606-20-2	2,6-Dinitrotoluene	12	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000022

CLIENT SAMPLE NO.

03-006-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-001

Sample wt/vol: 810 (g/mL) ML Lab File ID: S111306

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS:

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

99-09-2	3-Nitroaniline	60	U
83-32-9	Acenaphthene	12	U
51-28-5	2,4-Dinitrophenol	60	U
100-02-7	4-Nitrophenol	60	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	12	U
84-66-2	Diethylphthalate	12	U
7005-72-3	4-Chlorophenyl-phenylether	12	U
86-73-7	Fluorene	12	U
100-01-6	4-Nitroaniline	60	U
534-52-1	4,6-Dinitro-2-methylphenol	60	U
86-30-6	N-Nitrosodiphenylamine (1)	12	U
101-55-3	4-Bromophenyl-phenylether	12	U
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	60	U
85-01-8	Phenanthrene	12	U
120-12-7	Anthracene	12	U
84-74-2	Di-n-Butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	12	U
85-68-7	Butylbenzylphthalate	12	U
91-94-1	3,3'-Dichlorobenzidine	24	U
56-55-3	Benzo(a)anthracene	12	U
218-01-9	Chrysene	12	U
117-81-7	bis(2-Ethylhexyl)phthalate	12	U
117-84-0	Di-n-Octyl phthalate	12	U
205-99-2	Benzo(b)fluoranthene	12	U
207-08-9	Benzo(k)fluoranthene	12	U
50-32-8	Benzo(a)pyrene	12	U
193-39-5	Indeno(1,2,3-cd)pyrene	12	U
53-70-3	Dibenzo(a,h)anthracene	12	U
191-24-2	Benzo(g,h,i)perylene	12	U

12 3 JSU 2

12 3 JSU 2

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

12/88 Rev.

0009

1F 0000023

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

03-006-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9110L235-001

Sample wt/vol: 810 (g/mL) ML

Lab File ID: S111306

Level: (low/med) LOW

Date Received: 10/31/91

% Moisture: not dec. dec.

Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 11/13/91

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

Dilution Factor: 1.00

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLOHEXANONE	5.28	6	JB 23
2.	TRICHLOROPROPENE	5.53	10	JB 23
3.	ALKANE	21.23	7	JW
4.	ALKANE	21.83	10	J
5.	ALKANE	22.42	10	J
6.	ALKANE	23.05	7	J
7.	ALKANE	23.78	5	J
8.	ALKANE	24.65	10	J ↓

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000043

CLIENT SAMPLE NO.

03-006-M202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-002

Sample wt/vol: 910 (g/mL) ML Lab File ID: S111309

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS:

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

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
100-51-6	Benzyl alcohol	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	55	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	55	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	55	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000047

CLIENT SAMPLE NO.

03-006-M202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-002

Sample wt/vol: 910 (g/mL) ML Lab File ID: S111309

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. _____ dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS:

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

99-09-2-----	3-Nitroaniline	55	U
83-32-9-----	Acenaphthene	11	U
51-28-5-----	2,4-Dinitrophenol	55	U
100-02-7-----	4-Nitrophenol	55	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	55	U
534-52-1-----	4,6-Dinitro-2-methylphenol	55	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	55	U
85-01-8-----	Phenanthrene	11	U
120-12-7-----	Anthracene	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	22	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-----	Dibenzo(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

12/88 Rev.

0012

1F 0000045

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

03-006-M202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-002

Sample wt/vol: 910 (g/mL) ML Lab File ID: S111309

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 3 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLOHEXANONE	5.28	7	JB R3
2.	TRICHLOROPROPENE	5.53	20	JB ↓
3.	UNKNOWN	8.83	4	JB ↓

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000060

CLIENT SAMPLE NO.

03-005-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-003

Sample wt/vol: 930 (g/mL) ML Lab File ID: S111310

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

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	3	J
100-51-6	Benzyl alcohol	11	U
95-50-1	1,2-Dichlorobenzene	11	U
95-48-7	2-Methylphenol	11	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	55	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	55	U
91-58-7	2-Chloronaphthalene	11	U
88-74-4	2-Nitroaniline	55	U
131-11-3	Dimethylphthalate	11	U
208-96-8	Acenaphthylene	11	U
606-20-2	2,6-Dinitrotoluene	11	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

000006

CLIENT SAMPLE NO.

03-005-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-003

Sample wt/vol: 930 (g/mL) ML Lab File ID: S111310

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS:

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

99-09-2	3-Nitroaniline	55	U
83-32-9	Acenaphthene	11	U
51-28-5	2,4-Dinitrophenol	55	U
100-02-7	4-Nitrophenol	55	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	55	U
534-52-1	4,6-Dinitro-2-methylphenol	55	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	55	U
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	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	22	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	Dibenzo(a,h)anthracene	11	U
191-24-2	Benzo(g,h,i)perylene	11	U

11 1 JB-U 2

11 2 JB-U 2

(1) - Cannot be separated from Diphenylamine

1F 0000062

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

03-005-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-003

Sample wt/vol: 930 (g/mL) ML Lab File ID: S111310

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. _____ dec. Date Extracted: 11/05/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 11/13/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CYCLOHEXANONE	5.28	4	JB R 3
2.	TRICHLOROPROPENE	5.53	20	JB ↓
3.	UNKNOWN	8.85	3	JB ↓
4.	CAPROLACTAM	10.45	20	JNT
5.	UNKNOWN	24.48	8	JNT

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

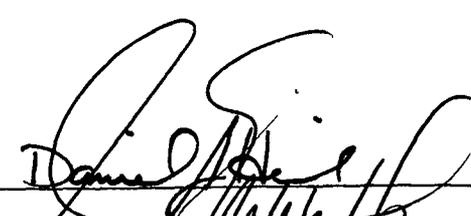
Case No. 91102235 SDG No. — LABORATORY RFUestm SITE Coltsneck

DATA ASSESSMENT:

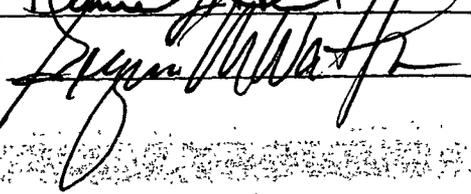
The current functional guidelines for evaluating organic data have been applied.

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

Reviewer's

Signature: 

Date: 3/2/1992

Verified By: 

Date: 3/2/1992

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

~~DA~~ 3-2-92

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 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

D. -n-butyl phthalate - CRQC
006-M002, M2002,
005-M002

Di(2-ethylhexyl) phthalate - CRQC
006-M002, M2002,
005-M002.

Reject all JB marked TICs

B) Field or rinse blank contamination

C) Water blank contamination

D) Trip blank contamination

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

DJK 3-29-92

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 ≥ 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".

~~*Continual. 5111302 - All samples
J. 4 Nitrophenol 5/16 3-2-92
4-Nitro aniline~~

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.

* Cont. Cal. 3111302 - All samples

J- 4-nitrophenol
4-nitroaniline

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

DJK 3-2-92

DATA ASSESSMENT:

7. INTERNAL STANDARDS PERFORMANCE:

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

If an internal standard retention time varies by more than 30 seconds, the reviewer will use professional judgment to determine either partial or total rejection of the data for that sample fraction.

No Action

~~DJA 3-2-92~~

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

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

B) PESTICIDE FRACTION:

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

No Action

~~DJK 32-92~~

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

DJA 3-2-92

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

NONE

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Fair

12. CONTRACT PROBLEMS 0 NON-COMPLIANCE:

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

NONE

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9110L235

LABORATORY RF Weston Louisville

SDG NO. _____

DATA USER RF Weston

SOW CLP 02/88

REVIEW COMPLETION DATE 3/2/92

NO. OF SAMPLES 3 WATER _____

SOIL _____ OTHER _____

REVIEWER ESD ESAT 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>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>g</u>	_____	_____
14. OVERALL ASSESSMENT	_____	_____	_____	_____

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 SIA Region II Date: 3/2/92
 Project: Coltneck Case #: 91106235
 Reviewer's Initials: DJK Lab Name: RF Weston / Lionville
 Number of Samples: EMW 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)	0	0	0	0	0	0	3	0/45
H/N (50)	0	0	0	8	0	0	3	8/150
VOA (35)								
PEST (20)								
ICB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)	0	0	0	0	0	0	3	0/45
H/N (50)	0	0	0	6	0	0	3	6/150
VOA (35)								
PEST (20)								
ICB (7)								
TCDD (1)								

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9110L235
 LAB: Roy F. Weston, Inc. Lionville
 SITE: Coltsneck

1.0 Data Completeness and Deliverables

YES NO N/A

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

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

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 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 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).

1.0 Holding Times

1.1 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	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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").

4.0 Surrogate Recovery (Form II)

3.1 Are the ENA 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 ENA 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 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 ENA 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 ("W").

	YES	NO	N/A
--	-----	----	-----

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

1. Flag all positive results for that fraction (i.e. all acid or base-neutral compounds) "J".
2. Flag all non-detects for that fraction "R".

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

3.5 Are there any transcription/calculation errors between raw data and Form II?

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 BNA spike recoveries are outside QC limits?

<u>Water</u>	<u>Soils</u>
<u>1</u> out of 22	<u> </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> </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.

5.0 Blanks (Form IV)

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

NO

N/A

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?5.3 Has a ^{Method} BVA ~~instrument~~ blank been analyzed for each GS/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.5.0 ContaminationNOTE: "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.6.2 Do any field/rinse blanks have positive BVA 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. 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.

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.

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 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			

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 BNA) present with required header information on each page, for each of the following:

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

	YES	NO	N/A
8.2 Are the EPA 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 checked="" type="checkbox"/>	___	___
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 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 EPA 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. 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?

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

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

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

b. Blanks

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

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)?

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

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?

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

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

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

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?

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

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

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

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.

Standards Data (GC/MS)

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.

MS Initial Calibration (Form VI)

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.

2 Are response factors stable for ENAs 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.)

Do any compounds have a RRF < 0.05?

ACTION: Circle all outliers in red.

ACTION: If any ENA 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").

% 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?

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.



March 5, 1991

To: John Williams
Roy F. Weston, Inc.
One Weston Way
Lionville, PA

From: Paul B Humburg
Project Manager
Heartland ESI

Subject: Submittal of Analytical Data Validation of the Pesticide/PCB analytical results of sampling conducted at the Naval Weapons Station/Earle, Colts Neck, NJ on October 31, 1991. There were three (3) water samples with one MS/MSD which were analyzed by the Roy F. Weston - Lionville Laboratory included in this analytical batch. **RFW Lot # 9110L235.**

**Samples Reviewed
Water Samples (All)**

<u>Field ID</u>	<u>Lab ID</u>
03-005-M002	9110L235-003
03-006-M002	9110L235-001
03-006-M002MS	9110L235-001MS
03-006-M002MSD	9110L235-001MSD
03-006-M202	9110L235-002

Heartland ESI has reviewed the data from the samples listed above for the Pesticide/PCB Target Compound List (TCL) based upon analytical and quality assurance requirements specified in the EPA CLP Statement of Work (SOW) 2/88 and 9/88 revisions, using the EPA Region II Standard Operating Procedure (SOP) HW-6, Revision 7, 3/90. 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 the U.S. EPA CLP and Region II. This screening assumes that the analytical results are correct as reported and merely provides an interpretation of the reported quality control results.

Individual analytical fractions were reviewed as follows:

- * Pesticide/PCB by Christopher D. Scarpellino with secondary review by Eugene M. Watson



QUALIFICATION CODES

U = Not detected

J = Estimated value

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 value

Heartland ESI specific findings are footnoted numerically on the Form Is in this data validation report. These specific finding footnotes refer to findings listed in the Data Assessment Narrative which describe the reasons for qualifications applied to the data.



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
All	All	U	UJ	1

- * DL denotes the Form I laboratory qualifier/value
 - + in the DL column indicates a positive result
 - + in the QL column denotes a revised positive result
- QL denotes the qualifier used by Heartland ESI



DATA ASSESSMENT NARRATIVE PESTICIDE/PCB 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.

In general, the laboratory performance was poor. The chromatography was generally of fair quality. All analyses were performed on packed columns utilizing peak heights for compound quantitation.

Holding Times

All samples were extracted and analyzed within holding times.

GC Instrument Performance

All peaks resulting from standards analyses were within the laboratory provided retention time windows (RTWs) for both the initial and confirmation sequences.

All percent breakdowns were less than 20%. The DBC retention time differences (%Ds) were within QC limits for all standards, samples and blanks.

Initial Calibration

The %RSDs for all compounds were within the QC limit for the initial calibration on the sample quantitation, primary, column. Aldrin and 4,4'-DDT %RSDs on the confirmation column initial calibration exceeded the QC limit. However, no quantitation was performed from this column and therefore there is no impact to the reported sample non-detect results.

Continuing Calibrations

All %Ds for the continuing calibrations were within the required limits for primary and confirmation analysis. No qualifications were required.



DATA ASSESSMENT NARRATIVE - continued - Page 2

Blanks

No target compounds were confirmed in the water method blank associated with the reported samples. No qualifications were required.

Surrogate Recoveries

All DBC surrogate recoveries were reportedly within the required QC limits. However, the reviewer could not duplicated the laboratory reported results. A factor of 1.8 was apparently used for the DBC concentrations obtained from the primary column to obtain the reported results. A factor of approximately 2.67 was used for the unreported confirmation column results. No mention of this factor was made in the case narrative and all "adjustments" are un-annotated with initials, dates or comments. The raw, unadjusted, DBC recoveries more closely agree with the reported blank spike compound recoveries.

Matrix Spike/Matrix Spike Duplicate

No qualifications were required based on the Recoveries or RPDs reported for the MS/MSD. However, three of the six reported recoveries for the associated Blank Spike (BS) were below the CLP MS/MSD recovery limits. All BS recoveries were fairly low, with an average recovery of 45%. The laboratory, in the case narrative, dismissed the low BS recoveries based on the good surrogate recoveries in the samples, which could not be verified by the reviewer.

Specific Finding

1. All non-detect results for all samples are qualified as estimated due to the low Blank Spike recoveries, which indicate a potentially low extraction efficiency which may adversely affect the reported detection limits.

Analyte Identification/Quantitation

No target compounds were identified in any of the reported samples.

Overall Assessment

The overall quality of the data package was fair. The reported results for the samples are qualified as described in this validation report.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

000002

CLIENT SAMPLE NO.

03-005-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-003
 Sample wt/vol: 620 (g/mL) ML Lab File ID: 12059103.15
 Level: (low/med) LOW Date Received: 10/31/91
 % Moisture: not dec. _____ dec. Date Extracted: 11/04/91
 Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/06/91
 GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS:

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

319-84-6	Alpha-BHC	0.080	U
319-85-7	Beta-BHC	0.080	U
319-86-8	Delta-BHC	0.080	U
58-89-9	gamma-BHC (Lindane)	0.080	U
76-44-8	Heptachlor	0.080	U
309-00-2	Aldrin	0.080	U
1024-57-3	Heptachlor epoxide	0.080	U
959-98-8	Endosulfan I	0.080	U
60-57-1	Dieldrin	0.16	U
72-55-9	4,4'-DDE	0.16	U
72-20-8	Endrin	0.16	U
33213-65-9	Endosulfan II	0.16	U
72-54-8	4,4'-DDD	0.16	U
1031-07-8	Endosulfan sulfate	0.16	U
50-29-3	4,4'-DDT	0.16	U
72-43-5	Methoxychlor	0.80	U
53494-70-5	Endrin ketone	0.16	U
5103-71-9	alpha-Chlordane	0.80	U
5103-74-2	gamma-Chlordane	0.80	U
8001-35-2	Toxaphene	1.6	U
12674-11-2	Aroclor-1016	0.80	U
11104-28-2	Aroclor-1221	0.80	U
11141-16-5	Aroclor-1232	0.80	U
53469-21-9	Aroclor-1242	0.80	U
12672-29-6	Aroclor-1248	0.80	U
11097-69-1	Aroclor-1254	1.6	U
11096-82-5	Aroclor-1260	1.6	U

J I
12-11-91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

0000019

CLIENT SAMPLE NO.

03-006-M202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-002
 Sample wt/vol: 800 (g/mL) ML Lab File ID: 12059103.14
 Level: (low/med) LOW Date Received: 10/31/91
 % Moisture: not dec. dec. Date Extracted: 11/04/91
 Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/06/91
 GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.062	U
319-85-7	Beta-BHC	0.062	U
319-86-8	Delta-BHC	0.062	U
58-89-9	gamma-BHC (Lindane)	0.062	U
76-44-8	Heptachlor	0.062	U
309-00-2	Aldrin	0.062	U
1024-57-3	Heptachlor epoxide	0.062	U
959-98-8	Endosulfan I	0.062	U
60-57-1	Dieldrin	0.12	U
72-55-9	4,4'-DDE	0.12	U
72-20-8	Endrin	0.12	U
33213-65-9	Endosulfan II	0.12	U
72-54-8	4,4'-DDD	0.12	U
1031-07-8	Endosulfan sulfate	0.12	U
50-29-3	4,4'-DDT	0.12	U
72-43-5	Methoxychlor	0.62	U
53494-70-5	Endrin ketone	0.12	U
5103-71-9	alpha-Chlordane	0.62	U
5103-74-2	gamma-Chlordane	0.62	U
8001-35-2	Toxaphene	1.2	U
12674-11-2	Aroclor-1016	0.62	U
11104-28-2	Aroclor-1221	0.62	U
11141-16-5	Aroclor-1232	0.62	U
53469-21-9	Aroclor-1242	0.62	U
12672-29-6	Aroclor-1248	0.62	U
11097-69-1	Aroclor-1254	1.2	U
11096-82-5	Aroclor-1260	1.2	U

J 1
 12-11-91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

0000014

CLIENT SAMPLE NO.

03-006-M002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9110L235-001

Sample wt/vol: 760 (g/mL) ML Lab File ID: 12059103.13

Level: (low/med) LOW Date Received: 10/31/91

% Moisture: not dec. dec. Date Extracted: 11/04/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/06/91

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/L</u>	
319-84-6	Alpha-BHC	0.066	U
319-85-7	Beta-BHC	0.066	U
319-86-8	Delta-BHC	0.066	U
58-89-9	gamma-BHC (Lindane)	0.066	U
76-44-8	Heptachlor	0.066	U
309-00-2	Aldrin	0.066	U
1024-57-3	Heptachlor epoxide	0.066	U
959-98-8	Endosulfan I	0.066	U
60-57-1	Dieldrin	0.13	U
72-55-9	4,4'-DDE	0.13	U
72-20-8	Endrin	0.13	U
33213-65-9	Endosulfan II	0.13	U
72-54-8	4,4'-DDD	0.13	U
1031-07-8	Endosulfan sulfate	0.13	U
50-29-3	4,4'-DDT	0.13	U
72-43-5	Methoxychlor	0.66	U
53494-70-5	Endrin ketone	0.13	U
5103-71-9	alpha-Chlordane	0.66	U
5103-74-2	gamma-Chlordane	0.66	U
8001-35-2	Toxaphene	1.3	U
12674-11-2	Aroclor-1016	0.66	U
11104-28-2	Aroclor-1221	0.66	U
11141-16-5	Aroclor-1232	0.66	U
53469-21-9	Aroclor-1242	0.66	U
12672-29-6	Aroclor-1248	0.66	U
11097-69-1	Aroclor-1254	1.3	U
11096-82-5	Aroclor-1260	1.3	U

J I
12-11-91

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW Lot # 9110L235

LAB: Roy F. Weston - Lionville Laboratory

Earle
SITE: Naval Weapons Station / Colts Neck, N.J.

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 OCS 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

*All Waters: Collected 10/31/91 Analyzed 12/6/91
 Extracted 11/4/91*

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.

3.3 Were outliers marked correctly with an asterisk?

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

ACTION: Circle all outliers in red.

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

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

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

3.5 Are there any transcription/calculation errors between raw data and Form II?

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

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

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

a. Low Water

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

b. Med Water

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

c. Low Soil

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

d. Med Soil

YES	NO	N/A
<input 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 PEST/PCB spike recoveries are outside QC limits?

<u>Water</u>	<u>Soils</u>
/ 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

4 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.

"Blank Spike"
 3 out of 6 Recoveries
 outside (below) CLP 2/88
 QC limits

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.

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.

Not identified

.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~~
-DS 3/3/92
- g. Aroclors 1016/1260
- h. Aroclors 1221, 1232, 1242, 1248, and 1254

ACTION: If no, take action specified in 3.2 above

- | | YES | NO | N/A |
|--|-------------------------------------|-------------------------------------|-----|
| 7.2 Is Form VIII Pest-1 present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses? | <input checked="" type="checkbox"/> | — | — |
| ACTION: If no, take action specified in 3.2 above. | | | |
| 7.3 Are there any transcription/calculation errors between raw data and Form VIII? | — | <input checked="" type="checkbox"/> | — |
| 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? | — | <input checked="" type="checkbox"/> | — |
| - for Endrin? | — | <input checked="" type="checkbox"/> | — |
| 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%? | — | <input checked="" type="checkbox"/> | — |

ACTION:

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

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

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

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

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

	YES	NO	N/A
7.5 Is the linearity check: RSD of all four calibration factors <10% for the quantitation column?	<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. <i>Confirmation (SP2100) >10% for Aldrin & DDT</i>			
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"/>
ACTION: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgement to determine the reliability of the analysis and flag results "R", if appropriate.			
7.7 Was the proper analytical sequence followed for each 72 hour period of analyses (page PEST D-36 in 8/87 SOW).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.			
<u>.0 Pesticide/PCB Standards Summary</u>			
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"/>
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"/>
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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".			
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"/>

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?

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

10 Pesticide/PCB Identification

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

*No positive hits in samples
 Not used by lab for
 Spike Samples.*

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

9.2 Are there any transcription errors between raw data and Form X?

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

9.3 Are retention times of sample compounds within the calculated retention time windows for both quantitation and confirmation analyses?

Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/ml in final extract)?

ACTION: Reject ("R") all positive results (meeting quantitation column criteria, but missing confirmation by a second column or GC/MS (if appropriate). Also, reject ("R") all positive results not meeting retention time window criteria unless associated standard compounds are similarly biased (i.e. base on RRT to DBC).

9.4 Check chromatograms for false negatives, especially for the multiple peak components toxaphene and PCB's. Were there any false negatives?

ACTION: If appropriate PCB standards were not analyzed, or if the lab performed no confirmation analysis, flag the appropriate data with an "R".

10.0 Compound Quantitation and Reported Detection Limits

YES NO N/A

10.1 Are there any transcription / calculation errors in Form I results? Check at least two positive values. Were any errors found?

— —

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

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

—

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

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

11.0 Chromatogram Quality

11.1 Were baselines stable?

— —

11.2 Were any electropositive displacement (negative peaks) or unusual peaks seen?

— —

11.3 Were early eluting peaks (for early eluting analytes) resolved to baseline?

— —

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

12. 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.

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis
RFW Lot#
Case No. 9110 L 235 SDG No. 03-005-14002 LABORATORY Lionsville SITE NWS Earle
Roy F. Weston
Colts Neck, N.J.

DATA ASSESSMENT:

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

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

Reviewer's
Signature: *[Signature]* Date: 3/3/1992

Verified By: *[Signature]* Date: 3/5/1992

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.

All samples were extracted and analyzed within the required holding times.

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

No confirmed peaks were identified within or near the target RTWs at or near the CROZ

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

The %RSDs for the initial calibration of the primary column are all less than 10%. Aldrin and 4,4'-DDT both exceed 10% RSD in the confirmation initial calibration. However, no quantitation performed from this column + thus no impact to the reported non-detect data.

All % Breakdowns in both columns were less than 20%.

All %Ds for continuing calibrations were within the required limits for primary and confirmation analysis

DATA ASSESSMENT:

6. SURROGATES:

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

*All surrogate recoveries were within the advisory
QC limits*

DATA ASSESSMENT:

8. COMPOUND IDENTIFICATION:

A) VOLATILE AND SEMI-VOLATILE FRACTIONS:

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

B) PESTICIDE FRACTION:

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

No target compounds were identified in any of the samples.

DATA ASSESSMENT:

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

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

The MSD recovery for Lindane was below the recovery limit. Four of the six RPDs exceeded the limits. No qualifications based on MS/MSD.

However, three of the six recoveries for the Blank Spike were below EPA CLP limits, internal laboratory limits are apparently not generated as prescribed by the NEEJA QA protocol. BS recoveries which were within CLP limits, were not within by much. Due to the low Blank Spike recoveries, and the laboratory's lack of action on this apparently "out-of-control" situation, all the associated sample non-detect results are qualified.

Surrogate recoveries do not correspond quantitatively to the spike recoveries for other compounds, indicating a potential standards mixture concentration problem.

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

See Blank Spike discussion, previous page
The laboratory apparently re-integrated manually every sample DBC peak. No pictures of these manual integrations are provided in the package to allow the reviewer to evaluate them. Surrogate recoveries without those changes to the reported values are mostly below recovery QC limits. — Although

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

poor

"poor integration" was noted by lab on some of the DBC concentrations — only the concentrations appear to have been changed, not the raw areas.

12. CONTRACT PROBLEMS ___ NON-COMPLIANCE:

potentially unwarranted manual integrations of DBC peaks or unexplained multiplication factor used to adjust DBC concentrations
{ SP 2250/240, DBC peaks multiplied by factor of ~1.8 why?
{ SP 2100 DBC peaks multiplied by factor of ~2.7

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

no explanation given in narrative

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

poor

The changes made to the DBC Peak ^{concentrations} areas appear to be column specific, rather than related to individual's samples or the DBC standards.

- The changes are not consistent with sample volume differences, which vary from 620 mL to 875 mL according to the "Extraction Record"
- Nor are they consistent with any sth. concentration correction factor which should be uniform regardless of column

e.g. Sample 03-006-M002

$$\frac{\text{INDA peak height response for DBC in Sample} \rightarrow (167186) \text{ (0.3ng)}}{\text{INDA DBC Amount Injected} \rightarrow (396143) \text{ (3 } \mu\text{L)}} = 0.0422 \text{ ng}/\mu\text{L}$$

(Note: The numerator is labeled "peak height response for DBC in Sample" and the denominator is labeled "INDA DBC Amount Injected". The denominator is also labeled "Amount of extract injected".)

which is reported on page 16 but manually changed to 0.0761

(adjusted for sample volume of 760 mL if surrogate added adjusted - 0.055)

76% recovery reported

Reviewer cannot duplicate surrogate recovery calculations.

42% DBC recovery agree much better with ^{CD5 3/4/92} 115/115 BS Recoveries (which average 45%) than does the reported 76%

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 91102235

LABORATORY Roy F. Weston - Lionville

SDG NO. 03-005-1002

DATA USER _____

SOW 2/88 SOW CLP

REVIEW COMPLETION DATE 3/5/92

NO. OF SAMPLES 3 ^{+ MS/MSD} WATER _____

SOIL _____ OTHER _____

REVIEWER ESD ESAT OTHER, CONTRACT/CONTRACTOR Heartland ESI

	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 (Spike)	_____	_____	<u>M</u>	_____
7. SURROGATES	_____	_____	<u>M</u>	_____
8. MATRIX SPIKE/DUPLICATES	_____	_____	<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: Poor Blank Spike Recoveries

Unverified Surrogate Recoveries

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

SOP NO: HW-6
Date: February 1989

Type of Review: CLP 2/88 SOW

Info: 3/5/92

Case #: 9110L235

Project: NWS Earle / Colts Neck N.J.

Lab Name: Roy F. Weston - Lionville

Reviewer's Initials: William D. Saylor CPS

Number of Samples: 3 waters + MS/MSD

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)								
PEST (20)	0	0	0	0	0	0	3	0/60
ICM (7)	0	0	0	0	0	0	3	0/21
ICM (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VOA (35)								
PEST (20)	0?	0	0	0	0	20x3	3	60/60
ICM (7)	0?	0	0	0	0	7x3	3	21/21
ICM (1)								

6200

**HEARTLAND ENVIRONMENTAL
SERVICES, INC.**



February 28, 1992

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

FROM: Paul Humburg
Project Manager
Heartland ESI.

SUBJECT: Submittal of Data Validation results for Naval Weapons Station, New Jersey. Three (3) water 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>
6-M002	911023501
6-M002MS	911023501MS
6-M002D	911023501D
6-M202	911023502
5-M002	911023503

Heartland ESI has reviewed the data for the samples listed above TAL Metals (under the limited scope requirements) 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.

000001



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# 9110235**, the analysis of three (3) 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 Selenium was above 150%. All positive results are rejected if within the concentration range as applied by the Region II Protocol.
2. The CRDL Standards for Arsenic and Lead were below the lower control limit. All positive and non-detect results are qualified if within the concentration range as applied by the Region II Protocol.

Preparation and Field Blanks

No deficiencies in this section.

Interferences

No significant interferences were observed.

Interferences

No significant interferences were observed.



Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

3. The Matrix Spike recoveries for Arsenic and Selenium were below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".
4. The Matrix Spike recovery for Lead was below 30%. All positive and non-detect results are rejected.

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

5. 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>
Lead	6-M202.
Selenium	6-M002 and 6-M202.



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All Water Samples	Se	+	R	1
All Wtaer Samples	As and Pb	+ /U	J/UJ	2
All Water Samples	As and Se	+ /U	J/UJ	3
All Water Samples	Pb	+ /U	R	4
6-M202. 6-M002 and 6-M202.	Pb Se	+ /U	J/UJ	5

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

QL - denotes data validation qualifier

1
INORGANIC ANALYSIS DATA SHEET

6-M002

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-03

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP235

Matrix (soil/water): WATER Lab Sample ID: 911023501

Level (low/med): LOW Date Received: 10/31/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	6.50	B	N	F
7440-39-3	Barium	72.50	B		P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	3.00			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	209.00			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	55.60			P
7439-89-6	Iron	113000.00			P
7439-92-1	Lead	51.30		NS	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese	219.00			P
7439-97-6	Mercury	.98			CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	2.80	B	NW	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	1990.00	B		P
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc	213.00			P
	Cyanide				NR

52,3

R4

R1

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

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

000019

6-M202

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-03

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP235

Matrix (soil/water): WATER Lab Sample ID: 911023502

Level (low/med): LOW Date Received: 10/31/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	16.00	U		P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	3.00	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	6.00	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.00	U		P
7439-89-6	Iron	46.00	U		P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese	2.00	U		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	2.00	U	NW	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	110.00	U		P
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc	6.00	U		P
	Cyanide				NR

UJ2,3

R4

UJ3,5

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

1
INORGANIC ANALYSIS DATA SHEET

5-M002

Lab Name: ROY F. WESTON, INC - L372 Contract: 1771-15-03

Lab Code: WESTON Case No.: NAVAL SAS No.: SDG No.: CLP235

Matrix (soil/water): WATER Lab Sample ID: 911023503

Level (low/med): LOW Date Received: 10/31/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic	20.50		NS	F
7440-39-3	Barium	290.00			P
7440-41-7	Beryllium				NR
7440-43-9	Cadmium	30.00			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	338.00			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	122.00			P
7439-89-6	Iron	369000.00			P
7439-92-1	Lead	114.00		N	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese	2640.00			P
7439-97-6	Mercury	.82			CV
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium	6.80		NS	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	4000.00	B		P
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc	835.00			P
	Cyanide				NR

J2,3

R4

R1

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

STANDARD OPERATING PROCEDURE

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

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

	YES	NO	N/A
A.1.1 <u>Contract Compliance Screening Report (CCS)</u> - Present? ACTION: If no, contact RSOC.	[]	—	✓
A.1.2 <u>Record of Communication (from RSOC)</u> - Present? ACTION: If no, request from RSOC.	[]	—	✓
A.1.3 <u>Trip Report</u> - Present and complete? ACTION: If no, contact RSOC for trip report.	[]	—	✓
A.1.4 <u>Sample Traffic Report</u> - Present or on file? Legible? ACTION: If no, request from Regional Sample Control Center (RSOC).	[] []	— —	✓ ✓
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? ACTION: If no, prepare Telephone Record Log, and contact laboratory. Do numbers of samples correspond to numbers on Record of Communication? Do sample numbers on cover page agree with sample numbers on: (a) Traffic Report Sheet? (b) Form I's? ACTION: If no for any of the above, contact RSOC for clarification.	[✓] [✓] [] [] [] [✓]	— — — — — —	— — ✓ — — —

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

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

	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"/>	___	___
ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	<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"/>	___	___
ACTION: If no for any of the above, prepare Telephone Record Log, and contract laboratory for corrected data.			
Were any samples diluted beyond requirements of contract?	___	<input checked="" type="checkbox"/>	___
If yes, were dilutions noted on Form I's?	<input checked="" type="checkbox"/>	___	___
ACTION: If no, note under Contract-Problem/Non-Compliance of the "Data Assessment Narrative".			

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

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

Mercury analysis (28 days) exceeded?	___	<input checked="" type="checkbox"/>	___
Cyanide distillation (14 days) exceeded?	___	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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

	YES	NO	N/A
Other Metals analysis (6 months) . . . exceeded?	—	<input checked="" 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"/>	—	—
	Digestion Log for furnace AA Form XIII present?	<input checked="" type="checkbox"/>	—	—
	Distillation Log for mercury Form XIII present?	<input checked="" type="checkbox"/>	—	—
	Distillation Log for cyanides Form XIII present?	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	<input checked="" type="checkbox"/>	—	—
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	<input checked="" type="checkbox"/>	—	—
	Are preparation dates present on Digestion Log?	<input checked="" type="checkbox"/>	—	—
A.1.8.2	Measurement read out record present?			
	ICP	<input checked="" type="checkbox"/>	—	<input checked="" type="checkbox"/>
	Flame AA	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
	Furnace AA	<input checked="" type="checkbox"/>	—	—
	Mercury	<input checked="" type="checkbox"/>	—	—
	Cyanides	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

STANDARD OPERATING PROCEDURE

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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"/>	___	___
<p><u>ACTION:</u> 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.</p>			
A.1.9 <u>Data Validation and Verification</u>			
1.9.1 <u>Calibration</u>			
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"/>	___	___
<p><u>ACTION:</u> If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".</p>			
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 $\pm 10\%$ 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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ACTION: Flag associated data as estimated if standards are not within $\pm 10\%$ of true values (except CRIL calibration standard). Do not flag the data as estimated in linear range indicated by good recovery of standard.			
A.1.9.1.3 Is correlation *coefficient less than 0.995 for:			
Mercury Analysis?	—	[✓]	—
Cyanide Analysis?	—	[]	✓
Atomic Absorption Analysis?	—	[✓]	—
ACTION: If yes, flag the associated data as estimated.			
A.1.9.2 <u>Form II A (Initial and Continuing Calibration Verification)-</u>			
A.1.9.2.1 Present and complete for every metal and cyanide?	[✓]	—	—
Present and complete for AA and ICP when both are used for same analyte?	[✓]	—	—
ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.			
A.1.9.2.2 Circle all values on data summary sheet that are outside contract windows. Are all calibration standards (initial and continuing) within control limits?			
Metals 90-110%	[✓]	—	—
Hg - 80-120%	[✓]	—	—
Cyanides 85-115%	[]	—	✓

* The reviewer will calculate correlation coefficient.

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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?

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

Was ICV for cyanides distilled?

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

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

A.1.9.3.1 Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?

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

Was a 2xCRDL (or 2xIDL when IDL > CRDL) analyzed (CRI) for each ICP run?
(Note: CRI for AL, Ba, Ca, Fe, Mg, Na, or K is not required.)

ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges.
The affected ranges are:

AA Analysis - **True Value \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"/>

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

A.1.9.3.3 Circle all values on summary sheet that are outside acceptance windows.

Are CRA and CRI standards within control limits:
 Metals 80 - 120%R?

Is mid-range standard within control limits:
 Cyanide 80 - 120%R?

ACTION: Flag as estimated all data within the affected ranges if the recovery of the standard is between 50-79%; flag only positive data if the recovery is between 121-150%; reject (red line) all data if the recovery is less than 50%; reject only positive data if the recovery is greater than 150%.

A.1.9.4 Form III (Initial and Continuing Calibration Blanks)

A.1.9.4.1 Present and complete?	<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"/>

ACTION: 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
ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value found in the raw data.			
A.1.9.5.3 Do concentrations of prep. blank fall below two times IEL when IEL is greater than CRDL?	<input checked="" type="checkbox"/>	---	---
ACTION: If no, reject (red-line) all positive data that has a concentration less than 10 times the prep. blank value in the raw data.			
A.1.9.5.4 Is concentration of prep. blank below the negative CRDL?	---	<input checked="" type="checkbox"/>	---
ACTION: 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"/>	---	---
ACTION: If no, flag as estimated (J) all samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.8.6.2 Circle all values on Data Summary Sheet that are more than + 20% of true or established mean value. Are all Interference Check Sample results inside of control limits (+ 20%)?	<input checked="" type="checkbox"/>	---	---
If no, is concentration of Al, Ca, Fe, or Mg lower than in ICS?	<input checked="" type="checkbox"/>	---	---
ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").			

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Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	PBH 2/27/90
(b) between 30-74%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
(c) between 126-150%	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
(d) greater than 150%	<input type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
(b) between 10-74%	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(c) between 126-200%	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(d) greater than 200%	<input type="checkbox"/>	<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
A.1.9.8 Form VI (Lab Duplicates)			
A.1.9.8.1 Present and complete for:			
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 checked="" type="checkbox"/>	___	___
ACTION: If no for any the above, flag as estimated (J) all data >CRDL* for which duplicate sample was not analyzed.			
Note: 1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated. 2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in Hg/L on wet weight basis and calculate RPD or Difference for each analyte.			
A.1.9.8.2 Was field blank used for duplicate analysis?	___	<input checked="" type="checkbox"/>	___
ACTION: If yes, flag all data >CRDL* as estimated (J) for which field blank was used as duplicate.			
NOTE: Duplicate analysis should be performed on a field blank when it is the only aqueous sample in SDG.			
A.1.9.8.3 Are all values within control limits (RPD 20% or difference < ±CRDL)?	<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"/>	___	___
ACTION: If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			
NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.			

* Substitute IDL for CRDL when IDL > CRDL.

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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"/>	
ACTION: 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"/>	
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"/>	
ACTION: If yes, flag the associated data as estimated.			
A.1.9.8.6 Soil/Sediment Circle all values on Data Summary Sheet that are: RPD > 100%, or Difference > 2 x CRDL*			
Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) :			
> 100%?		<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 <u>Soil/Sediment</u>			

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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A.1.9.10.2 Aqueous LCS				
Circle all LCS values outside control limits (80 - 120% - except aqueous Ag and Sb).				
Is any LCS recovery:	less than 50%	___	[<input checked="" type="checkbox"/>]	___
	between 50% and 79%	___	[<input checked="" type="checkbox"/>]	___
	between 121% and 150%	___	[<input checked="" type="checkbox"/>]	___
	greater than 150%	___	[<input checked="" type="checkbox"/>]	___
ACTION: Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.				

A.1.9.10.3 Solid LCS

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

Is LCS "Found" value higher than the control limits on Form VII?	___	[<input type="checkbox"/>]	[<input checked="" type="checkbox"/>]
ACTION: If yes, qualify all associated positive data as estimated.			
Is LCS "Found" value lower than the Control limits on Form VII?	___	[<input type="checkbox"/>]	[<input checked="" type="checkbox"/>]
ACTION: If yes, qualify all associated data as estimated.			

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	YES	NO	N/A
A.1.9.11 <u>Form IX (ICP Serial Dilution) -</u>			
<u>NOTE:</u> 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?	[X]	---	---
each matrix type?	[X]	---	---
each concentration range (i.e. low, med.)?	[X]	---	---
<u>ACTION:</u> 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 DFO report.			
A.1.9.11.2 Was field blank(s) used for Serial Dilution Analysis?	---	[X]	---
<u>ACTION:</u> If yes, flag all associated data \geq 10 x IDL as estimated (J).			
<u>NOTE:</u> 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.	[X]	---	---
<u>ACTION:</u> 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%?	---	[X]	---
\geq 100%?	---	[X]	---

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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"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, is any Form I result coded with "S" or a "+"?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.9.13.2 Is coefficient of correlation for MSA less than 0.990 for any sample?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ACTION: If yes, reject (red-line) affected data.			
A.1.9.13.3 Was *MSA required for any sample but not performed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is coefficient of correlation for MSA less than 0.995?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ACTION: If yes for any of the above, flag all the associated data as estimated (J).			
A.1.9.13.4 Was proper quantitation procedure followed correctly as outlined in the SOW on page E-16 through E-17?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTION: 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

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YES NO N/A

- NOTE:**
1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration.
 2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents.
 3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.

A.1.9.14.2 Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%? _ [] _

A.1.9.14.3 Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%? _ [] _

ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.

A.1.9.15 Form I to IX

A.1.9.15.1 Are all the Form I through Form IX labeled with:

Laboratory name?	[<input checked="" type="checkbox"/>]	_	_
Case/SAS number?	[<input checked="" type="checkbox"/>]	_	_
EPA sample No.?	[<input checked="" type="checkbox"/>]	_	_
SDG No.?	[<input checked="" type="checkbox"/>]	_	_
Contract No.?	[<input checked="" type="checkbox"/>]	_	_
Correct units?	[<input checked="" type="checkbox"/>]	_	_
Matrix?	[<input checked="" type="checkbox"/>]	_	_

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.

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

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

	YES	NO	N/A
<hr/>			
A.1.9.17 <u>Form X, XI, XII (Verification of Instrumental Parameters).</u>			
A.1.9.17.1 Is verification report present for:			
Instrument Detection Limits (quarterly)?	<input checked="" type="checkbox"/>	___	___
ICP Interelement Correction Factors (annually)?	<input checked="" type="checkbox"/>	___	___
ICP Linear Ranges (quarterly)?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no, contact DPO of the lab.			
A.1.9.17.2 <u>Form X (Instrument Detection Limits)</u> - (Note: IDL is not required for Cyanide.)			
Are IDLs present for:			
all the analytes?	<input checked="" type="checkbox"/>	___	___
all the instruments used?	<input checked="" type="checkbox"/>	___	___
For both AA and ICP when both are used for same analyte?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no for any of the above, prepare Telephone Record Log and contact laboratory.			
Is IDL greater than CRDL for any analyte?	___	<input checked="" type="checkbox"/>	___
If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL?	<input checked="" type="checkbox"/>	___	___
<u>ACTION:</u> If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			

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

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

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

000030

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

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

Case#	<u>NWS</u>	Site	<u>Naval Weapons Station</u>	Matrix: Soil	<u> </u>
SDG#	<u>CLP 235</u>	Lab	<u>Roy F. Weston</u>	Water	<u>✓</u>
Contractor	<u>Roy F. Weston</u>	Reviewer	<u>Houstonland EST</u>	Other	<u> </u>

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. Selenium CRDL > 1508 All positive results are rejected.
2. Arsenic and Lead CRDL Low Recovery All data estimated.
3. Matrix Spike Recoveries for Arsenic and Selenium low recovery All data estimated.
4. Matrix Spike Recovery for Lead < 30%. All data rejected.
5. Analytical spikes for Lead (6-M202) and Selenium (6-M002 and 6-M202) were out of control and flagged accordingly.

PBH 2/27/91

000031

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

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

PBH 2/27/92

2.2 Contract-Problems/Non-Compliance

PBH 2/27/92

M/S Reviewer: _____

Date: _____

Signature

Contractor Reviewer: _____

Date: _____

Signature

Verified By: _____

Date: _____

000032

LABORATORY: Roy F. Weston CASE NO. NWS SOW NO. 390 SAMPLE TYPE/SDG: CLP 235

SITE/STUDY DESCRIPTION: Naval Weapons Station SAMPLE NOS: 6-M002, 6-M202, 5-M002

FIELD DUP. #'S: _____ LAB DUP. #'S: 6-M002 Field Blank _____ MATRIX SPIKE #: 6-M002

SERIAL DILUTION SAMPLE NO. 6-M002 COMPLETION DATE: 2/27/92 REVIEWERS INITIALS: PBH

Element	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 X R		M S t p r i x	Lab Dup RPD Diff	LCS X R	Ser Dil X D	M e t h		
	CRDL	IDL		Continued			Init	Fin	Continued				Init	Fin						X R	X R
				1	2	3			1	2	3										
Al	200		NA																		
Sb	60																				
As	10	2		92	93	95	93	(77)		U	U	U	U	U		(39)	21	95		F	
Ba	200	16		100	100	98	97			U	U	U	U	U	85	84	94	>100	100	P	
Be	5																				
Cd	5	2		98	98	94	93	117	109	U	U	U	U	U	97	97	90	6	99	100	P
Ce	5000																				
Cr	10	4		98	98	97	97	112	107	U	U	U	U	U	98	97	97	.6	99	7.5	P
Co	50																				
Cu	25	6		98	98	95	95	111	108	U	U	U	U	U	97	96	91	.4	98	7.7	P
Fe	100	46		99	100	98	98			U	U	U	U	U		PBH	(260) (18)	15	100 84	7.3	P
Pb	3	3		105	103	103	109	(56)		U	U	U	U	U		(18)	18	84		F	
Mg	5000																				
Mn	15	2		99	98	97	97	97	97	U	U	U	U	U	88	92	92	.9	97	4.6	P
Hg	0.2			102	103	101	101			U	U	U	U	U			97	2.1	95		CU
Ni	40																				
K	5000																				
Se	5	2		100	97	97	95	(170)		U	U	U	U	U		(70)	11	83		F	
Ag	10	3		98	99	96	96	114	111	U	U	U	U	U	99	98	94		98		P
Na	5000	110		100	100	99	98			U	U	U	U	U				3	101	5.7	P
P	10																				
V	50																				
Zn	20	6		101	101	99	98	112	113	U	U	U	U	U	94	94	96	20	103	9.5	P
IN	10																				

000033

APPENDIX A.5

SUMMARY OF INORGANICS QUALITY CONTROL DATA

LABORATORY: Ray F. Weston CASE NO. NWS SOW NO. 390 SAMPLE TYPE/SDG: CLP 235

SITE/STUDY DESCRIPTION: _____ SAMPLE NOS: _____

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

SERIAL DILUTION SAMPLE NO. _____ COMPLETION DATE: 2/27/90 REVIEWERS INITIALS: PBW

Element	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 c p r i x	Lab Dup RPD	LCS Z R	Ser Dil Z D	M e t h
	UG/L	IDL		Continued			Init	Fin	Continued				Init	Fin					
	CRDL	IDL		1	2	3	1	2	3	1	2		3						
Al	200		NA																
Sb	60																		
As	10	2		93	94				U	U									F
Ba	200	16		97					U										P
Be	5																		
Cd	5	2		97					U										P
Ca	5000																		
C	10	4		46					U										P
C	50																		
Cu	25	6		95					U										P
Fe	100	46		98					U										P
Pb	3	3		101	97	98	101	(60)	U	U	U	U							F
Mg	5000			92	88	4													
Mn	15	2		99					U										P
Hg	0.2			99					U										CV
Ni	40																		
K	5000																		
Se	5	2		94	96	96	(24)		U	U	U								F
Ag	10	3		97					U										P
Na	5000	110		98					U										P
Tl	10																		
V	50																		
Zn	20	6		99					U										P
EN	10																		

000034

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.6: CLP Data Assessment
Summary Form (Inorganics)

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

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Type of Review: TAL Metals (limited scope) Date: 2/27/92 Case #: NWS
Site: Naval Weapons Station Lab Name: Roy F. Weston
Reviewer's Initials: PBH Number of Samples: 3

Analytes Rejected Due to Exceeding Review Criteria:*

	Holding Times	Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Recovery	Duplicates Lab	Duplicates Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
ICP														
Flame AA														
Furnace AA		1				1							2	
Mercury														
Total		1				1							2	
Other														

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

ICP														
Flame AA														
Furnace AA		2				2						2	6	
Mercury														
Total		2				2						2	6	
Other														

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

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

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

INORGANIC REGIONAL DATA ASSESSMENT

Region VI

CASE NO. NWS LABORATORY Roy F. Wegton SDG# CLP 231 SOW# 390 DPO: ACTION: FYI

SITE Naval Weapon Station NO. OF SAMPLES/MATRIX 3 waters REVIEWER (IF NOT ESD) Heartland EST REVIEWER'S NAME Paul B. Hundby COMPLETION DATE 2/27/92

DATA ASSESSMENT SUMMARY

Table with 4 columns: ICP, AA, Hg, CYANIDE and 12 rows of assessment criteria. Includes handwritten '0' and 'NA' values.

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:



Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 23, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There was one (1) water sample which was received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9110L125**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>NITRO</u>
26-002-M202	9110L125-001	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg



DATA ASSESSMENT NARRATIVE

PICRIC ACID ANALYSIS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the Roy F. Weston Analytical Method for Picric Acid by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the laboratory summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (laboratory summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

The methodology supplied by Roy F. Weston Laboratories does not state a specified holding time criteria. However, the samples were extracted and analyzed within the holding time criteria set forth by the explosives methodologies. No action is required.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The initial calibration performed by the laboratory is acceptable per the methodology.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

DATA ASSESSMENT NARRATIVE

PAGE - 2

PICRIC ACID ANALYSIS

MS/MSD analysis

A MS/MSD was not analyzed with this SDG. A blank BS was analyzed and exhibited low recoveries (13%) for picric acid. Heartland ESI had to use good professional judgement to evaluate the MS/MSD results due to the fact that the protocol does not have set QA/QC limits for the recoveries of the spike compounds. Since all the results were non detects, Heartland ESI is going to qualify all the non detects as estimated (UJ).

Specific findings:

1. For all samples, qualify the non detect results for picric acid due to very low MS/MSD recoveries.

Method specific QA/QC

There is no method specific QA/QC.

Compound identification/quantitation

No positive results were reported.

Overall assessment

The overall quality of the data package is good.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
All samples	picric acid	-	R	1

* 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



Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 29, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were four (4) 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 9110L107**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>NITRO</u>
26-001-M002	9110L107-001	WATER	X
26-001-M102	9110L107-002	WATER	X
26-002-M002	9110L107-003	WATER	X
26-002-M002MS	9110L107-003	WATER	X
26-002-M002MSD	9110L107-003	WATER	X
26-004-M002	9110L107-005	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg



DATA ASSESSMENT NARRATIVE

PICRIC ACID ANALYSIS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the Roy F. Weston Analytical Method for Picric Acid by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the laboratory summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (laboratory summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

The methodology supplied by Roy F. Weston Laboratories does not state a specified holding time criteria. However, the samples were extracted and analyzed within the holding time criteria set forth by the explosives methodologies. No action is required.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The initial calibration performed by the laboratory is acceptable per the methodology.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.



DATA ASSESSMENT NARRATIVE

PAGE - 2

PICRIC ACID ANALYSIS

MS/MSD analysis

Heartland ESI had to use good professional judgement to evaluate the MS/MSD results due to the fact that the protocol does not have set QA/QC limits for the recoveries of the spike compounds. The MS/MSD did not exhibit acceptable recoveries for picric acid (the recoveries were very low (< 22% recovery)). Since all the results were non detects, Heartland ESI is going to qualify all the non detects as estimated (UJ).

Specific findings:

1. For all samples, qualify the non detect results for picric acid due to very low MS/MSD recoveries.

Method specific QA/QC

There is no method specific QA/QC.

Compound identification/quantitation

No positive results were reported.

Overall assessment

The overall quality of the data package is good.



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
All samples	picric acid	-	R	1

* 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

RFW Batch Number: 9110L107

Client: NAVAL WEAPONS/COLTSNECK

Work Order: 1771-15-03-0000

Page: 1

Cust ID: 26-001-M002 26-001-M102 26-002-M002 26-002-M002 26-002-M002 26-004-M002

Sample Information	RFW#:	001	002	003	003 MS	003 MSD	005
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

=====fl=====fl=====fl=====fl=====fl=====fl=====fl
 Picric Acid _____ 9.04 UJ 9.33 UJ 9.25 UJ 21 % 15 % 9.78 UJ

Cust ID: BLK BLK BS

Sample Information	RFW#:	91LLC083-MB1	91LLC083-MB1
	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	ug/L	ug/L

=====fl=====fl=====fl=====fl=====fl=====fl=====fl
 Picric Acid _____ 8.22 U 13 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

000000

2007



Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 29, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were four (4) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9110L191**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>NITRO</u>
02-001-M002	9110L191-001	WATER	X
02-001-M202	9110L191-002	WATER	X
02-003-M002	9110L191-005	WATER	X
02-006-M002	9110L191-008	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg



DATA ASSESSMENT NARRATIVE

PICRIC ACID ANALYSIS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the Roy F. Weston Analytical Method for Picric Acid by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the laboratory summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (laboratory summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

The methodology supplied by Roy F. Weston Laboratories does not state a specified holding time criteria. However, the samples were extracted and analyzed within the holding time criteria set forth by the explosives methodologies. No action is required.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The initial calibration performed by the laboratory is acceptable per the methodology.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.



DATA ASSESSMENT NARRATIVE

PAGE - 2

PICRIC ACID ANALYSIS

MS/MSD analysis

A MS/MSD was not analyzed with this SDG. A blank BS/BSD was analyzed and exhibited low recoveries for picric acid. Heartland ESI had to use good professional judgement to evaluate the MS/MSD results due to the fact that the protocol does not have set QA/QC limits for the recoveries of the spike compounds. Since all the results were non detects, Heartland ESI is going to qualify all the non detects as estimated (UJ).

Specific findings:

1. For all samples, qualify the non detect results for picric acid due to very low MS/MSD recoveries.

Method specific QA/QC

There is no method specific QA/QC.

Compound identification/quantitation

No positive results were reported.

Overall assessment

The overall quality of the data package is good.



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
All samples	picric acid	-	R	1

* 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



Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 29, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were four (4) water samples which were received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9110L191**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>NITRO</u>
02-001-M002	9110L191-001	WATER	X
02-001-M202	9110L191-002	WATER	X
02-003-M002	9110L191-005	WATER	X
02-006-M002	9110L191-008	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg



DATA ASSESSMENT NARRATIVE

EXPLOSIVES ANALYSIS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the USATHAMA/PMRMA Programs Analytical Method for Explosives in Soil by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the RFW Data Summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (RFW Data Summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

All of the extraction (7 days) and analysis (40 days) holding times were met per the USATHAMA/PMRMA protocol.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The laboratory did not calibrate the instrument per the USATHAMA/PMRMA protocol in two ways. First and foremost, the laboratory did not analyze all of the calibration points required by the methodology. The low concentration standard (0.2X) was not analyzed which, according to the protocol, reflects the laboratory's ability to achieve the sensitivity needed for the detection limits that are reported. Although this is a deviation from the protocol, Heartland ESI will not qualify the data based upon the good compound responses in the 0.5X standard.

Secondly, the laboratory did not follow the proper procedure for the analysis of the final closing check standard that is analyzed at the end of the sequence. The methodology states that the highest concentration standard (100X) is to be analyzed at the completion of the analyses and its response must agree within:

- a) 25% for that concentration from the first seven calibration curves or



DATA ASSESSMENT NARRATIVE

PAGE - 2

EXPLOSIVES ANALYSIS

Initial Calibrations (continued)

- b) thereafter, two (2) standard deviations of the mean response for the concentration for the calibrations curves.

The lack of information in the data package made it impossible to determine if the standard that was analyzed by the laboratory agreed within 25% of the initial calibration. The laboratory only reported the correlation coefficients for the initial calibration, and did not summarize the closing standard except for the recoveries of the individual analytes. In addition, the laboratory did not analyze the highest concentration standard, instead the laboratory analyzed the 10X standard. The laboratory did not close the sequence with a standard as the method requires. Qualifications will be required.

Specific findings:

1. For sample 02-006-M002, qualify all positive results as estimated (J) and all non detect results as estimated (UJ) due to the lack of a closing standard.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

MS/MSD analysis

A MS/MSD was not analyzed with this SDG.

Method specific QA/QC

The laboratory did not analyze the correct number of QA/QC samples. The methodology states that two (2) 10X and one (1) 2X spike blanks be analyzed for control charting. The laboratory only analyzed one (1) of the 10X spikes and the control charts were not provided in the package to access the daily quality control.



DATA ASSESSMENT NARRATIVE

PAGE - 3

EXPLOSIVES ANALYSIS

Compound identification/quantitation

The laboratory reported positive results for five (5) compounds. Qualifications will be required.

Specific findings:

2. For sample 02-001-M002, reject the reported result (<CRQL) for 1,3,5-TNB and report the analyte as non detect at the CRQL.
3. Due to the gross variation in the retention times of the compounds in the standard analysis, the end user must be aware of the potential for false positive results. Based on the limited information available in the data package the end user must use caution or request additional information from the laboratory.

Overall assessment

The overall quality of the data package is fair. The laboratory deviated from the required protocol in some instances.



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

- U** = Not detected
- J** = Estimated value
- UJ** = Reported quantitation limit is qualified as estimated
- R** = Result is rejected and unusable
- NJ** = Presumptive evidence for the presence of the material at an estimated value
- K** = Result is biased high
- L** = Result is biased low

METHOD BLANK QUALIFICATION CODES

- CRQL** = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
- U** = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
- No Action** = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

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



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
02-006-M002	all analytes	+/-	J/UJ	1
02-001-M002	1,3,5-TNB	+P	CRQL	2
See case narrative	all positive results	+		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

RFW Batch Number: 9110L191

Client: NAVAL WEAPONS/COLTSNECK

Work Order: 1771-15-03-0000

Page: 1

Cust ID: 02-001-M002 02-001-M202 02-003-M002 02-006-M002 BLK BLK BS

Sample Information	RFW#:	001	002	005	008	91LLC088-MB1	91LLC088-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L

	fl	fl	fl	fl	fl	fl	fl
HMX	1.30 U	1.30 U	1.30 U	1.30 U	1.30 U	1.30 U	94 %
RDX	0.63 U	0.63 U	0.63 U	0.63 U	5.91 J 1,3	0.63 U	97 %
1,3,5-TNB	0.56 0.56 U 2	0.56 U	3.02 G 3	0.61 U	0.84 JG 1,3	0.56 U	99 %
1,3-DNB	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	101 %
Tetryl	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	100 %
2,4,6-TNT	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	101 %
2,6-DNT	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	104 %
2,4-DNT	0.60 U	0.60 U	0.60 U	0.60 U	1.61 J 1,3	0.60 U	101 %

Cust ID: BLK BSD

Sample Information	RFW#:	91LLC088-MB1
	Matrix:	WATER
	D.F.:	1.00
	Units:	UG/L

	fl	fl	fl	fl	fl
HMX	94 %				
RDX	98 %				
1,3,5-TNB	99 %				
1,3-DNB	100 %				
Tetryl	94 %				
2,4,6-TNT	96 %				
2,6-DNT	101 %				
2,4-DNT	99 %				

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. %=. Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 23, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There was one (1) water sample which was received and analyzed by Roy F. Weston Laboratories - Lionville in this analytical batch, **R. F. Weston Number 9110L125**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>NITRO</u>
26-002-M202	9110L125-001	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg



DATA ASSESSMENT NARRATIVE

EXPLOSIVES ANALYSIS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the USATHAMA/PMRMA Programs Analytical Method for Explosives in Soil by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the RFW Data Summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (RFW Data Summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

All of the extraction (7 days) and analysis (40 days) holding times were met per the USATHAMA/PMRMA protocol.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The laboratory did not calibrate the instrument per the USATHAMA/PMRMA protocol in two ways. First and foremost, the laboratory did not analyze all of the calibration points required by the methodology. The low concentration standard (0.2X) was not analyzed which, according to the protocol, reflects the laboratory's ability to achieve the sensitivity needed for the detection limits that are reported. Although this is a deviation from the protocol, Heartland ESI will not qualify the data based upon the good compound responses in the 0.5X standard.

Secondly, the laboratory did not follow the proper procedure for the analysis of the final closing check standard that is analyzed at the end of the sequence. The methodology states that the highest concentration standard (100X) is to be analyzed at the completion of the analyses and its response must agree within:

- a) 25% for that concentration from the first seven calibration curves or



DATA ASSESSMENT NARRATIVE

PAGE - 2

EXPLOSIVES ANALYSIS

Initial Calibrations (continued)

- b) thereafter, two (2) standard deviations of the mean response for the concentration for the calibrations curves.

The lack of information in the data package made it impossible to determine if the standard that was analyzed by the laboratory agreed within 25% of the initial calibration. The laboratory only reported the correlation coefficients for the initial calibration, and did not summarize the closing standard except for the recoveries of the individual analytes. In addition, the laboratory did not analyze the highest concentration standard, instead the laboratory analyzed the 10X standard.

However, based on the deliverable requirement of the methodology, Heartland ESI cannot qualify the data based on the information available.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

MS/MSD analysis

The laboratory did not analyzed a MS/MSD with this SDG.

Method specific QA/QC

The laboratory did not analyze the correct number of QA/QC samples. The methodology states that two (2) 10X and one (1) 2X spike blanks be analyzed for control charting. The laboratory only analyzed one (1) of the 10X spikes and the control charts were not provided in the package to access the daily quality control.

Compound identification/quantitation

One (1) positive results were reported. No qualifications are required.



DATA ASSESSMENT NARRATIVE

PAGE - 3

EXPLOSIVES ANALYSIS

Overall assessment

The overall quality of the data package is fair. The laboratory deviated from the required protocol in some instances.



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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



SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID _____ ANALYTE ID DL QL SPECIFIC FINDINGS

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory

QL denotes the qualifier used by the data validation firm

+ in the DL column denotes a positive result

- in the DL column denotes a non detect result

RFW B Number: 9110L125

Client: NAVAL WEAPONS

Work Order: 1771-15-03-0000

: 1

Cust ID: 26-002-M202

BLK

BLK BS

Sample	RFW#:	001	91LLC087-MB1	91LLC087-MB1
Information	Matrix:	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L

	BLK	BLK BS	
HMX	1.30 U	1.30 U	98 %
RDX	0.63 U	0.63 U	95 %
1,3,5-TNB	0.56 U	0.56 U	101 %
1,3-DNB	0.61 U	0.61 U	102 %
Nitrobenzene	1.13 U	1.13 U	100 %
TETRYL	0.66 U	0.66 U	103 %
2,4,6-TNT	0.78 U	0.78 U	101 %
2,6-DNT	0.55 U	0.55 U	102 %
2,4-DNT	0.60 U	0.60 U	101 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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Data Validation Report

March 5, 1992

Prepared for

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

This Data Validation Report is a review of the analytical results of sampling conducted in support of the Navy CLEAN program October 23, 1991 at the **NWS Earle-Coltsneck Naval Weapons Station** site. There were four (4) 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 9110L107**.

The data validation personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The Nitroaromatic fraction has been validated utilizing method specific requirements and good professional judgement.

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



SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fraction</u>	
<u>CLIENT ID</u>	<u>RF WESTON ID</u>	<u>Matrix</u>	<u>NITRO</u>
26-001-M002	9110L107-001	WATER	X
26-001-M102	9110L107-002	WATER	X
26-002-M002	9110L107-003	WATER	X
26-002-M002MS	9110L107-003	WATER	X
26-002-M002MSD	9110L107-003	WATER	X
26-004-M002	9110L107-005	WATER	X

Individual fractions were reviewed as follows:

		Primary	Secondary
NITRO-	USATHAMA Nitroaromatics	Gene Watson	Paul Humburg



DATA ASSESSMENT NARRATIVE

EXPLOSIVES ANALYSIS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, matrix spike recoveries, HPLC performance, blank spike results and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the USATHAMA/PMRMA Programs Analytical Method for Explosives in Soil by HPLC and Region II Data Validation Deliverable Guidelines. However, due to the fact this package does not require the submission of true Form Is, Heartland ESI will submit the RFW Data Summary in place of the Form I's in the data validation package. All comments made within this report should be considered when examining the analytical results (RFW Data Summary). Please refer the specific findings found in each category to the Summary of Data Qualifications table.

Holding times

All of the extraction (7 days) and analysis (40 days) holding times were met per the USATHAMA/PMRMA protocol.

HPLC performance

The system performance of the HPLC was good. The instrument did not exhibit any major problems.

Initial calibrations

The laboratory did not calibrate the instrument per the USATHAMA/PMRMA protocol in two ways. First and foremost, the laboratory did not analyze all of the calibration points required by the methodology. The low concentration standard (0.2X) was not analyzed which, according to the protocol, reflects the laboratory's ability to achieve the sensitivity needed for the detection limits that are reported. Although this is a deviation from the protocol, Heartland ESI will not qualify the data based upon the good compound responses in the 0.5X standard.

Secondly, the laboratory did not follow the proper procedure for the analysis of the final closing check standard that is analyzed at the end of the sequence. The methodology states that the highest concentration standard (100X) is to be analyzed at the completion of the analyses and its response must agree within:

- a) 25% for that concentration from the first seven calibration curves or



DATA ASSESSMENT NARRATIVE

PAGE - 2

EXPLOSIVES ANALYSIS

Initial Calibrations (continued)

- b) thereafter, two (2) standard deviations of the mean response for the concentration for the calibrations curves.

The lack of information in the data package made it impossible to determine if the standard that was analyzed by the laboratory agreed within 25% of the initial calibration. The laboratory only reported the correlation coefficients for the initial calibration, and did not summarize the closing standard except for the recoveries of the individual analytes. In addition, the laboratory did not analyze the highest concentration standard, instead the laboratory analyzed the 10X standard.

However, based on the deliverable requirement of the methodology, Heartland ESI cannot qualify the data based on the information available.

Continuing calibrations

No continuing calibrations associated with this sample batch.

Method blanks

The method blank did not exhibit contamination for the target explosive compounds.

MS/MSD analysis

Heartland ESI had to use good professional judgement to evaluate the MS/MSD results due to the fact that the USATHAMA/PMRMA protocol does not have set QA/QC limits for the recoveries of the spike compounds. The MS/MSD did exhibit acceptable recoveries for all the target explosive compounds.

Method specific QA/QC

The laboratory did not analyze the correct number of QA/QC samples. The methodology states that two (2) 10X and one (1) 2X spike blanks be analyzed for control charting. The laboratory only analyzed one (1) of the 10X spikes and the control charts were not provided in the package to access the daily quality control.



DATA ASSESSMENT NARRATIVE

PAGE - 3

EXPLOSIVES ANALYSIS

Compound identification/quantitation

One (1) positive results were reported. No qualifications are required.

Overall assessment

The overall quality of the data package is fair. The laboratory deviated from the required protocol in some instances.



GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

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

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

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

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

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

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



SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u> _____	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
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No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory

QL denotes the qualifier used by the data validation firm

+ in the DL column denotes a positive result

- in the DL column denotes a non detect result

Cust ID: 26-001-M002 26-001-M102 26-002-M002 26-002-M002 26-002-M002 26-004-M002

Sample Information	RFW#:	001	002	003	003 MS	003 MSD	005
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

	fl	fl	fl	fl	fl	fl
HMX	1.30 U	1.30 U	1.30 U	97 %	98 %	1.30 U
RDX	0.63 U	0.63 U	0.63 U	94 %	96 %	0.94
1,3,5-TNB	0.56 U	0.56 U	0.56 U	98 %	101 %	0.56 U
1,3-DNB	0.61 U	0.61 U	0.61 U	101 %	103 %	0.61 U
Nitrobenzene	1.13 U	1.13 U	1.13 U	101 %	101 %	1.13 U
TETRYL	0.66 U	0.66 U	0.66 U	109 %	107 %	0.66 U
2,4,6-TNT	0.78 U	0.78 U	0.78 U	102 %	103 %	0.78 U
2,6-DNT	0.55 U	0.55 U	0.55 U	106 %	106 %	0.55 U
2,4-DNT	0.60 U	0.60 U	0.60 U	104 %	104 %	0.60 U

Cust ID: BLK BLK BS

Sample Information	RFW#:	91LLC087-MB1	91LLC087-MB1
	Matrix:	WATER	WATER
	D.F.:	1.00	1.00
	Units:	ug/L	ug/L

	fl	fl	fl	fl	fl
HMX	1.30 U	98 %			
RDX	0.63 U	95 %			
1,3,5-TNB	0.56 U	101 %			
1,3-DNB	0.61 U	102 %			
Nitrobenzene	1.13 U	100 %			
TETRYL	0.66 U	103 %			
2,4,6-TNT	0.78 U	101 %			
2,6-DNT	0.55 U	102 %			
2,4-DNT	0.60 U	101 %			

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked. % = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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