



HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

REGION II VOA DATA VALIDATION
NAVAL WEAPONS STATION - COLTSNECK
ROY F. WESTON CASE 9103L804

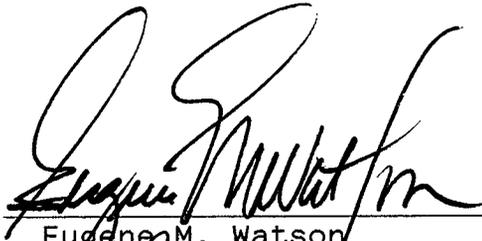
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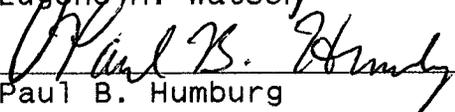
Water Samples (all)

22-009-S202 9103L804-026 22-009-S302 9103L804-027
20-005-S202 9103L804-035

Soil Samples (all)

22-007-S002 9103L804-019 22-008-S002 9103L804-022
22-009-S002 9103L804-024 22-009-S102 9103L804-025
20-005-S002 9103L804-033 20-005-S002 9103L804-033MS
20-005-S002 9103L804-033MSD20-005-S102 9103L804-036

PREPARED BY: 
Eugene M. Watson

VERIFIED BY: 
Paul B. Humburg

DATE: 8-19-91

DATE: 8/20/91



DATA ASSESSMENT AND NARRATIVE

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 and Region II SOP No. HW-6, Revision 7. All comments made within this report should be considered when examining the analytical results (Form I's).

Holding Times

All of the samples met the U. S. EPA CLP holding times of ten (10) days from VTSR.

Method Blanks

The three method blanks that were analyzed exhibited contamination for methylene chloride and acetone. All sample results are compared to the associated method blank results.

Specific Findings:

1. For samples 22-007-S002, 22-008-S002, 22-009-S002, and 22-009-S102, the method blank 91LVX035-MB1 exhibited contamination for methylene chloride and acetone. The sample results for methylene chloride are greater than the CRQL and less than 10X the blank value. Qualify the sample results as "U". The sample results for acetone are greater than the CRQL and greater than 10X the blank value. Reject the "B" qualifier and report the acetone values.
2. For samples 20-005-S002, 20-005-S102, and 20-005-S102RE, the method blank 91LVX037-MB1 exhibited contamination for methylene chloride and acetone. The sample results for methylene chloride and acetone are greater than the CRQL and less than 10X the blank value. Qualify the sample results as "U".
3. For samples 22-009-S202, 22-009-S302, and 20-005-S202, the method blank 91LVK047-MB1 exhibited contamination for methylene chloride and acetone. The sample results for methylene chloride are less than the CRQL and less than 10X the blank value. Reject the sample results and report the CRQL for methylene chloride. The sample results for acetone are greater than the CRQL and less than 10X the blank value. Qualify the sample results as "U".



DATA ASSESSMENT AND NARRATIVE

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Tuning

All of the BFB tunes in the initial and continuing calibrations met the criteria of the SOW and the Organic Functional Guidelines.

Calibrations - Relative Response Factors (RRFs)

The RRFs from the calibrations in this data package were acceptable.

Calibrations - %RSDs and %Ds

The calibrations presented in this data package were acceptable. However, the laboratory did encounter some problems with certain compounds.

Specific Findings:

4. For samples 22-009-S202, 22-009-S302, and 20-005-S202, the continuing calibration on instrument MSD-K on 03/13/91 contained the following compounds that were greater than 25% D, but less than 50% D. Qualify all positive results as estimated (J).
 - a) methylene chloride
 - b) acetone
5. For the initial calibration on MSD-X on 03/08/91, the following compounds had %RSDs greater than 30%. However, no qualifications are needed since samples were not analyzed after the initial calibration.
 - a) methylene chloride
6. For samples 22-007-S002, 22-008-S002, 22-009-S002, and 22-009-S102, the continuing calibration on instrument MSD-X on 03/10/91 contained the following compounds that were greater than 25% D, but less than 50% D. Qualify all positive results as estimated (J).
 - a) methylene chloride
 - b) acetone
7. For samples 20-005-S002, 20-005-S102, 20-005-S002MS, 20-005-S002MSD, and 20-005-S102RE, the continuing calibration on instrument MSD-K on 03/12/91 contained the following compounds that were greater than 25% D, but less than 50% D. Qualify all positive results as estimated (J).
 - a) 2-butanone



DATA ASSESSMENT AND NARRATIVE

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Surrogates

The surrogate recoveries for five (5) of the sample analyses fell outside the established QA/QC criteria limits. All results associated with these samples will be qualified.

Specific Findings:

8. For samples 20-005-S002, 20-005-S002MS, 20-005-S002MSD, 20-005-S102, and 20-005-S102RE, one or more surrogates exhibited recoveries that were outside the QA/QC limits. Qualify all positive results as estimated (J) and all non detect results as estimated (UJ).

Internal Standards

The EICP areas for the internal standards for five (5) samples were outside the QA/QC control limits. All sample results associated with these internal standard EICP areas will be qualified.

Specific Findings:

9. For samples 20-005-S002, 20-005-S002MS, and 20-005-S002MSD, the EICP area for chlorobenzene-d5 was below the lower control limit. Qualify all positive results as estimated (J) and all non detect results as estimated (UJ).
10. For samples 20-005S-102 and 20-005-S102RE, the EICP areas for all of the internal standards were below the lower control limit. Qualify all positive results as estimated (J) and all non detect results as estimated (UJ).

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD recoveries and RPDs were acceptable. No qualifications are needed.

Compound Identification/Quantitation

Two (2) of the samples contained percent moisture levels in excess of 50%. The data associated with these two (2) samples will be qualified per Region II guidelines.

Specific Findings:

11. For samples 20-005-S002 and 20-005-S102, the percent moisture content was greater than 50%. Qualify all positive results as estimated (J) and all non detects as estimated (UJ).

00004



DATA ASSESSMENT AND NARRATIVE

Page 4

System Performance and Overall Assessment

The GC/MS system performance for the calibrations and the analysis was acceptable. The data package was thorough and complete. Please refer to the Summary of Data Qualifications for a tabulated summary of the data assessment and narrative.

00005



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

Heartland ESI 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>
22-007-S002, 22-008-S002 22-009-S002, 22-009-S102	methylene chloride acetone	+ B	U ---	1 1
20-005-S002, 20-005-S102 20-005-S102RE	methylene chloride acetone	+	U	2
22-009-S202, 22-009-S302 20-005-S202	methylene chloride acetone	+ +	CRQL U	3 3
22-009-S202, 22-009-S302 20-005-S202	methylene chloride acetone	+	J	4
22-007-S002, 22-008-S002 22-009-S002, 22-009-S102	methylene chloride acetone	+	J	6
20-005-S002, 20-005-S102 20-005-S102RE, 20-005-S002MS, 20-005-S002MSD	2-butanone	+	J	7
20-005-S002, 20-005-S102 20-005-S102RE, 20-005-S002MS, 20-005-S002MSD	all TCLs	+/-	J/UJ	8
20-005-S002, 20-005-S002MS 20-005-S002MSD	all compounds associated with the internal standard chlorobenzene-d5	+/-	J/UJ	9

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



SUMMARY OF DATA QUALIFICATIONS

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<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
20-005-S102 20-005-S102RE	a11 TCLs	+/-	J/UJ	10
<hr/>				
20-005-S002, 20-005-S102	a11 TCLs	+/-	J/UJ	11

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

1A
VOLATILE ORGANICS ANALYSIS SHEET 0000030

CLIENT SAMPLE NO.

22-007-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-019

Sample wt/vol: 5.10 (g/mL) G Lab File ID: AX3A14

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 12 Date Analyzed: 03/10/91

Column: (pack/cap) CAP Dilution Factor: 0.980

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

74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	44	B U
67-64-1	Acetone	130	B I 1,6
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

1E
VOLATILE ORGANICS ANALYSIS SHEET 0000031
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

22-007-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL

Lab Sample ID: 9103L804-019

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

Lab File ID: AX3A14

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. 12

Date Analyzed: 03/10/91

Column: (pack/cap) CAP

Dilution Factor: 0.980

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS SHEET 0000037

CLIENT SAMPLE NO.

22-008-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-022

Sample wt/vol: 4.90 (g/mL) G Lab File ID: AX3A15

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 9 Date Analyzed: 03/10/91

Column: (pack/cap) CAP Dilution Factor: 1.02

CONCENTRATION UNITS:

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

74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	50	BU
67-64-1	Acetone	140	BU 1,6
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	11	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

1E
VOLATILE ORGANICS ANALYSIS SHEET **0000038**
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

22-008-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL

Lab Sample ID: 9103L804-022

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

Lab File ID: AX3A15

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. 9

Date Analyzed: 03/10/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS SHEET 0000044

CLIENT SAMPLE NO.

22-009-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-024

Sample wt/vol: 4.90 (g/mL) G Lab File ID: AX3A16

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 21 Date Analyzed: 03/10/91

Column: (pack/cap) CAP Dilution Factor: 1.02

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	49	B ^U
67-64-1	Acetone	130	B ^J 1,6
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

1E
VOLATILE ORGANICS ANALYSIS SHEET 0000045
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

22-009-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL

Lab Sample ID: 9103L804-024

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

Lab File ID: AX3A16

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. 21

Date Analyzed: 03/10/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.64	8	J

1A
VOLATILE ORGANICS ANALYSIS SHEET 0000054

CLIENT SAMPLE NO.

22-009-S102

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-025

Sample wt/vol: 4.90 (g/mL) G Lab File ID: AX3A17

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 21 Date Analyzed: 03/10/91

Column: (pack/cap) CAP Dilution Factor: 1.02

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

74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	53	B ⁰ 1
67-64-1	Acetone	220	B ¹ 16
75-15-0	Carbon Disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
108-05-4	Vinyl Acetate	13	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS 0000055

CLIENT SAMPLE NO.

22-009-S102

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL

Lab Sample ID: 9103L804-025

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

Lab File ID: AX3A17

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. 21

Date Analyzed: 03/10/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000061

22-009-S202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-026

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: AK3D10

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. Date Analyzed: 03/13/91

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

CONCENTRATION UNITS:

CAS NO. COMPOUND (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	45	JB U 3
67-64-1	Acetone	98	B U 3
75-15-0	Carbon Disulfide	1	J
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 0000062

CLIENT SAMPLE NO.

22-009-S202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9103L804-026

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

Lab File ID: AK3D10

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec.

Date Analyzed: 03/13/91

Column: (pack/cap) CAP

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 0000069

CLIENT SAMPLE NO.

22-009-S302

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-027

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: AK3D11

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. _____ Date Analyzed: 03/13/91

Column: (pack/cap) CAP 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	B ^N U ^S
67-64-1	Acetone	14	B ^N U ^S
75-15-0	Carbon Disulfide	1	J
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 0000070
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

22-009-S302

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9103L804-027

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

Lab File ID: AK3D11

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. _____

Date Analyzed: 03/13/91

Column: (pack/cap) CAP

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 0000075

CLIENT SAMPLE NO.

20-005-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-033

Sample wt/vol: 5.00 (g/mL) G Lab File ID: AX3C09

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 53 Date Analyzed: 03/12/91

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

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

74-87-3	Chloromethane	21	U
74-83-9	Bromomethane	21	U
75-01-4	Vinyl Chloride	21	U
75-00-3	Chloroethane	21	U
75-09-2	Methylene Chloride	130	B
67-64-1	Acetone	78	B
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	21	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
108-05-4	Vinyl Acetate	21	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	Trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-pentanone	21	U
591-78-6	2-Hexanone	21	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styren	10	U
1330-20-7	Xylene (total)	10	U

J 8, 11
2
2
9

1E
VOLATILE ORGANICS ANALYSIS SHEET 0000076
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

20-005-S002

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-033

Sample wt/vol: 5.00 (g/mL) G Lab File ID: AX3C09

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 53 Date Analyzed: 03/12/91

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

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

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

1A
VOLATILE ORGANICS ANALYSIS SHEET 0000082

CLIENT SAMPLE NO.

20-005-S202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9103L804-035

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

Lab File ID: AK3D12

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. _____

Date Analyzed: 03/13/91

Column: (pack/cap) CAP

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	350	JB
67-64-1	Acetone	86	B'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	
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

33

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS 0000083

CLIENT SAMPLE NO.

20-005-S202

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER

Lab Sample ID: 9103L804-035

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

Lab File ID: AK3D12

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. _____

Date Analyzed: 03/13/91

Column: (pack/cap) CAP

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

CLIENT SAMPLE NO.

0000090

20-005-s102

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-036

Sample wt/vol: 4.90 (g/mL) G Lab File ID: AX3C08

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 58 Date Analyzed: 03/12/91

Column: (pack/cap) CAP Dilution Factor: 1.02

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/Kg

CAS NO.

COMPOUND

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
74-87-3	Chloromethane	24	U
74-83-9	Bromomethane	24	U
75-01-4	Vinyl Chloride	24	U
75-00-3	Chloroethane	24	U
75-09-2	Methylene Chloride	140	B
67-64-1	Acetone	110	B
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	24	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
108-05-4	Vinyl Acetate	24	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-pentanone	24	U
591-78-6	2-Hexanone	24	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

J 8, 10, 11
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1E
 VOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS 000009

CLIENT SAMPLE NO.

20-005-S102

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL

Lab Sample ID: 9103L804-036

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

Lab File ID: AX3C08

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. 58

Date Analyzed: 03/12/91

Column: (pack/cap) CAP

Dilution Factor: 1.02

Number TICs found: 0

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

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

1A
VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000097

20-005-S102RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL

Lab Sample ID: 9103L804-036

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

Lab File ID: AX3C12

Level: (low/med) LOW

Date Received: 03/05/91

% Moisture: not dec. 58

Date Analyzed: 03/12/91

Column: (pack/cap) CAP

Dilution Factor: 0.980

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	23	U
74-83-9	Bromomethane	23	U
75-01-4	Vinyl Chloride	23	U
75-00-3	Chloroethane	23	U
75-09-2	Methylene Chloride	74	U
67-64-1	Acetone	60	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	23	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
108-05-4	Vinyl Acetate	23	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	Trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-pentanone	23	U
591-78-6	2-Hexanone	23	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
 VOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

0000098

20-005-S102RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-036

Sample wt/vol: 5.10 (g/mL) G Lab File ID: AX3C12

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 58 Date Analyzed: 03/12/91

Column: (pack/cap) CAP Dilution Factor: 0.980

Number TICs found: 0 CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/Kg

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

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 91032804 SDG No. LABORATORY R. WESTON SITE COLTS NECK.
LIONVILLE

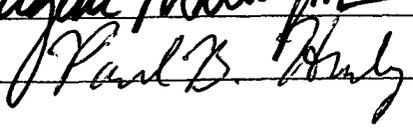
DATA ASSESSMENT:

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: 8/19/1991

Verified By: 

Date: 8/20/1991

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

EMM
8-19-91

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

91LVK035-MB1
Samples 22-007-5002, 22-008-5002,
CH₂Cl₂ - U, 22-009-5002
Acetone - OK. 22-009-S102

91LVK037-MB1
20-005-5002, 20-005-S102,
2-005-S102LE
CH₂Cl₂ - U
Acetone - U

91LVK047-MB1
22-009-5202
22-009-5302
20-005-5202
CH₂Cl₂ - CRQL
Acetone - U

B) Field or rinse blank contamination

Not identified

C) Water blank contamination

See above

D) Trip blank contamination

Not identified

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

3. SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure mass resolution, identification of compounds, and to some degree, the instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene and for semi-volatiles is decafluorotriphenyl-phosphine.

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

No Action

SMW
8-19-91

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".

No Action

EMM
8-19-91

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.

* Int. Cal, 3-8-91, Inst. MSD-K. - No Samples, No Action.

* Cont Cal 3-13-91, Inst. MSD-K, Samples 22-009-5202, 22-009-5302, 20-605-5202

I pos >25% - <50% - CH₂Cl₂, Acetone.

* Int. Cal 3-8-91, Inst. MSD-X - No Samples

>30% RSD - CH₂Cl₂

* Cont Cal 3-10-91, Inst. MSD-X, Samples 22-007-5002, 22-008-5002, 22-009-5002, 22-009-5102

I pos >25% - <50% - CH₂Cl₂, Acetone.

* Cont Cal 3-12-91, Inst. MSD-X, Samples 20-005-5102, 20-005-5002, 20-005-5002MS, 20-005-5002MSD,

20-005-5102RE

I pos >25% - <50% - 2-butanone.

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.

*Samples 20-005-5002, 20-005-5002MS, 20-005-5002MSD,
20-005-5102, 20-005-5102 RE -*

*one or more surrogates outside of QA/QC
limits. Qualify all positive results (I)
and non detects (UI)*

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.

Samples 20-005-5002, 20-0005-5002MS, 20-005-5002MSD -
Chlorobenzene - 05 out of QC limits low -
J/UJ

Samples 20-005-5102, 20-005-5102 LE -
J/UJ all compounds - all three ISDs
out of QC limits low.

EMW
8-19-91

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/ μ L in the final sample extract.

** Some of the mass spectra were missing the molecular ion. However, these compounds were found at a relatively low conc. No Action.*

EMW

8-19-91

DATA ASSESSMENT:

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

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

No Action

[Signature]
8-19-97

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

*System performance is fair. See
narrative.*

12. CONTRACT PROBLEMS 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.

20-005-5102 instead of 20-005-5102 RE.

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

SOP NO: HW-6
Date: February 1989

Type of Review: VOA REGION II VALIDATION

Date: 8-19-91

Case #: 9103L804

Project: COLTSNECK NAVAL WEAPONS STATION

Lab Name: K.F. WESTON - LIONVILLE

Reviewer's Initials: EMW

Number of Samples: 9

Analytes Rejected Due to Exceeding Review Criteria:

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

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)								
H/N (50)								
VOA (35)	105	0	4	18		114	9	241/315
PEST (20)								
ICB (7)								
TCDD (1)								

0041

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 9103L804

LABORATORY R.F. WESTON - LINDSVILLE

SDG NO. _____

DATA USER R.F. WESTON

SOW 2/88 OIP / REGION II

REVIEW COMPLETION DATE 8-19-91

NO. OF SAMPLES 3 WATER 6 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>M</u>	_____	_____	_____
8. MATRIX SPIKE/DUPPLICATES	<u>0</u>	_____	_____	_____
9. REGIONAL QC (*F* = not applicable)	<u>F</u>	_____	_____	_____
10. INTERNAL STANDARDS	<u>M</u>	_____	_____	_____
11. COMPOUND IDENTIFICATION	<u>0</u>	_____	_____	_____
12. COMPOUND QUANTITATION	<u>0</u>	_____	_____	_____
13. SYSTEM PERFORMANCE	<u>M</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: _____

00040

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9103L804
 LAB: R.F. WESTON - LIONVILLE
 SITE: COLTSNECK NAVAL WEAPONS STATION

1.0 Data Completeness and Deliverables YES NO N/A

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

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

1.2 Was SMD CCS checklist included with package?

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

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

3.0 Data Validation Checklist

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

Does this package contain:

VOA data?
 EFA data?
 Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

YES NO N/A

PART A: VOA ANALYSES

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

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

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special 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).

→ Not noted in Case Narrative

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

2.0 Holding Times

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

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

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

Table of Holding Time Violations

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

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

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

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

3.3 Were outliers marked correctly with an asterisk?

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

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?

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

If yes, were samples reanalyzed?

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

Were method blanks reanalyzed?

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

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 ("W").

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

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

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

4.3 How many VOA spike recoveries are outside QC limits?

N/A Water out of 10 0 Soils out of 10

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

N/A Water out of 5 0 Soils 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.

5.0 Blanks (Form IV)

YES NO N/A

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

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

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

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

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

Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?

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

6.0 Contamination

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

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

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

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

Not Identified

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.

Not identified

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			
		<i>SMW</i>				
		<i>8-19-91</i>				

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

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

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

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

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

7.6 Have the appropriate number of significant figures (two) been reported? (Check at least two values, but if errors are found check more values.) YES NO N/A

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

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

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

8.0 Target Compound List (TCL) Analytes

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

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

	YES	NO	N/A
8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following?			
a. Samples and/or fractions as appropriate	<input checked="" type="checkbox"/>	—	—
b. Matrix spikes and matrix spike duplicates (Mass spectra not required)	<input checked="" type="checkbox"/>	—	—
c. Blanks	<input checked="" type="checkbox"/>	—	—

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

8.3 Are the response factors shown in the Quant Report?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	—
8.4 Is chromatographic performance acceptable with respect to:	<i>Quantum</i>		
Baseline stability	<input checked="" type="checkbox"/>	—	—
Resolution	<input checked="" type="checkbox"/>	—	—
Peak shape	<input checked="" type="checkbox"/>	—	—
Full-scale graph (attenuation)	<input checked="" type="checkbox"/>	—	—
Other: _____	<input 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:	<input checked="" type="checkbox"/>	—	—
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.			
<u>10.0 Compound Quantitation and Reported Detection Limits</u>			
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 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").

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YES NO N/A

12.4 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least two values but if errors are found, check more.)

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?

YES NO N/A

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

YES NO N/A

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

~~_____~~
~~_____~~
~~_____~~

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

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

YES NO N/A

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%?

YES NO N/A

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.)

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".

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?

YES NO N/A

ACTION: List all the outliers below.

Sample #	Internal Std	Area	Lower Limit	Upper Limit
20-005-5002	CBZ	65762	67646	270584
20-005-5002MS	↓	46126	↓	↓
20-005-5002MSD	↓	46874	↓	↓
20-005-5102CE	BCM	71137	15377	61506
↓	DFB	51217	72713	290850

(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?

YES NO N/A

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

% 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.)

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".

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?

YES NO

ACTION: List all the outliers below.

continued

Sample #	Internal Std	Area	Lower Limit	Upper Limit
20-005-S102RE	CBZ	35845	67646	270584
20-005-S102	BCM	12833	15377	61506
↓	DAB	53445	72713	290850
✓	CBZ	37167	67646	270584

(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?

YES NO

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

15.0 Field Duplicates

YES NO N/A

15.1 Were any field duplicates submitted for VOA analysis?

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

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

Not identified



HEARTLAND ENVIRONMENTAL SERVICES, INC.

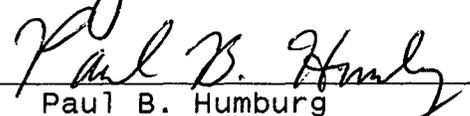
P.O. BOX 163 ST. PETERS MO 63376
(314) 278-8232

REGION II SVOA DATA VALIDATION
NAVAL WEAPONS STATION - COLTSNECK
ROY F. WESTON CASE 9103L804

<u>Coltsneck ID</u>	<u>R.F. Weston ID</u>	<u>Coltsneck ID</u>	<u>R.F. Weston ID</u>
Water Samples (all)			
22-006-D201	9103L804-017	20-005-D201	9103L804-034
Soil Samples (all)			
22-003-D001	9103L804-013	22-006-D001	9103L804-016
22-007-S001	9103L804-018	22-007-S001	9103L804-018MS
22-007-S001	9103L804-018MSD	22-008-S001	9103L804-020
22-008-S101	9103L804-021	22-009-S001	9103L804-023
20-003-D001	9103L804-030	20-005-D001	9103L804-032
20-005-D101	9103L804-037		

PREPARED BY: 
Eugene M. Watson

DATE: 8-19-91

VERIFIED BY: 
Paul B. Humburg

DATE: 8/20/91

00001



DATA ASSESSMENT AND NARRATIVE

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 and Region II SOP No. HW-6, Revision 7. All comments made within this report should be considered when examining the analytical results (Form I's).

Holding Times

All of the holding times, with the exception of 20-005-D201RE, met the required U. S. EPA CLP and Region II protocol.

Specific Findings:

1. For sample 20-005-D201RE, the extraction holding time was grossly exceeded. Qualify all positive results as estimated (J) and reject (R) all non detects.

Blanks:

The laboratory did not identify trip or field blanks on the Chain-of-Custody, so Heartland ESI must assume that blanks were not submitted with the SVOA samples.

All three (3) of the method blanks that were extracted and analyzed exhibited contamination for TCLs and numerous TICs. The TICs found in the blank appeared in most of the samples. Most TICs that were labeled with blank qualifiers "B" are rejected since they are less than 5X the blank value.

Specific Findings:

2. For samples 20-003-D001 and 20-005-D101, the method blank 91LE0344-MB1 exhibited contamination for N-nitrosodiphenylamine. All sample results for N-nitrosodiphenylamine are less than the CRQL and less than 10X the blank value. Reject the sample results and report the CRQL.
3. For sample 20-005-D201RE, the method blank 91LE0428-MB1 exhibited contamination for N-nitrosodiphenylamine. All sample result for N-nitrosodiphenylamine is less than the CRQL and less than 10X the blank value. Reject the sample result and report the CRQL.



DATA ASSESSMENT AND NARRATIVE

PAGE - 2

4. For samples 22-006-D201 and 20-005-D201, the method blank 91LE0326-MB1 exhibited contamination for di-n-butylphthalate and bis(2-ethylhexyl)phthalate. All sample results for di-n-butylphthalate and bis(2-ethylhexyl)phthalate are less than the CRQL and less than 10X the blank value. Reject the sample results and report the CRQL.
5. For the following samples, the TICs listed below are rejected due to blank contamination.

<u>Sample ID</u>	<u>TIC Number</u>
22-003-D001	1
22-006-D001	1
22-007-S001	1
22-008-S001	1
22-009-S001	1
20-003-D001	1
20-005-D001	1
20-005-D101	1
22-006-D201	1,3,4,6,9,10,12,13,14
20-005-D201	1,3,6,7,8,9,10,11,12

Tuning

All the DFTPP tunes met the tuning criteria set forth by Region II and the Functional Guidelines.

Calibrations - Relative Response Factors (RRFs)

All of the initial and continuing calibrations met the Region II requirements for RRFs.

Calibrations - %RSDs and %Ds

The initial and continuing calibrations were very good for the majority of the compounds. However, the laboratory did encounter some difficulties with the initial and continuing calibrations of certain compounds.

Specific findings:

6. The initial calibration on 04/03/91 on instrument 4500V contained the following compounds above 30%RSD. Samples were not analyzed so qualifications are not necessary.
 - a) 2,4-dinitrophenol
 - b) 4-nitroaniline



DATA ASSESSMENT AND NARRATIVE

PAGE - 3

Calibrations - %RSDs and %Ds (continued)

7. For sample SBLKE0326-MB1, the continuing calibration on 03/22/91 on instrument IN50J contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) 2,4-dinitrophenol
 - b) 4-nitrophenol

8. For samples 22-006-D201, 20-005-D201, 22-003-D001, and 22-006-D001 the continuing calibration on 03/28/91 on instrument 4500V contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) bis(2-ethylhexyl)phthalate

9. For samples 22-007-S001, 22-008-S101, and 22-009-S001, the continuing calibration on 03/29/91 on instrument 4500V contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) benzoic acid
 - b) acenaphthene
 - c) pyrene
 - d) butylbenzylphthalate
 - e) bis(2-ethylhexyl)phthalate
 - f) p-terphenyl-d14 (surrogate)

10. For samples 22-007-S001MS, 22-007-S001MSD, 20-003-D001, and 20-005-D001, the continuing calibration on 03/29/91 on instrument 4500V contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) benzoic acid
 - b) 2,4-dinitrophenol
 - c) hexachlorocyclopentadiene

11. For sample SBLKE0334-MB1, the continuing calibration on 04/04/91 on instrument 4500V contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) hexachlorocyclopentadiene
 - b) pyrene

00004



DATA ASSESSMENT AND NARRATIVE

PAGE - 4

Calibrations - %RSDs and %Ds (continued)

12. For sample SBLKE0428-MB1, the continuing calibration on 04/04/91 on instrument 4500V contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) 2,4-dinitrophenol
 - b) 4-nitrophenol
 - c) pyrene
 - d) butylbenzylphthalate
 - e) p-terphenyl-d14 (surrogate)

13. For sample 20-005-D201RE, the continuing calibration on 04/05/91 on instrument 4500V contained the following compounds above 25% D, but less than 50% D. Qualify all positive result for these compounds as estimated (J).
 - a) 4-nitroaniline

Surrogates

All of the samples, with the exception of 20-005-D201RE, contained surrogate recoveries that were within the CLP QA/QC criteria.

Specific Findings:

14. For sample 20-005-D201RE, two (2) acid surrogates exhibited recoveries below 10%. Qualify all positive results as estimated (J) and reject (R) all non detect results for the acid fraction.

Internal Standards

One (1) sample exhibited EICP internal standard areas which were out of QA/QC limits. All other sample EICP internal standard areas were acceptable.

Specific Findings:

15. For sample 20-005-D201RE, the following internal standards exhibited EICP areas that were below the lower control limit. For all compounds associated with these internal standards, qualify all positive results as estimated (J) and all non detect results as estimated (UJ).
 - a) chrysene-d12
 - b) perylene-d12

: 00005



DATA ASSESSMENT AND NARRATIVE

PAGE - 5

Compound Identification/Quantitation

All of the spectra submitted by the laboratory met the Region II guidelines. No qualifications are needed for this. However, two (2) samples contained percent moisture's that were greater than 50%.

Specific Findings:

16. For samples 20-005-D001 and 20-005-D101, the percent moisture content is greater than 50%. Qualify all positive results as estimated (J) and all non detect results as estimated (UJ).

Matrix Spike/Matrix Spike Duplicate

The water MS/MSD did not yield acceptable recoveries. However, the soil MS/MSD did not require any qualifications.

Specific Findings:

17. For all water samples, the blank spike MS/MSD yielded recoveries for pentachlorophenol which were below 10%. Qualify all positive results as estimated (J) and reject (R) all non detect results.

System Performance and Overall Assessment

The overall performance of the GC/MS system was acceptable. The quality of the data package was acceptable. Heartland ESI estimates that less than 5% of the data that is qualified.

00006



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

Heartland ESI 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>
20-005-D201RE	all analytes	+/-	J/R	1
20-003-D001, 20-005-D101	N-nitrosodi- phenylamine	+	CRQL	2
20-005-D201RE	N-nitrosodi- phenylamine	+	CRQL	3
22-006-D201, 20-005-D201	di-n-butyl- phthalate bis(2-ethylhexyl)phthalate	+	CRQL	4
all samples	TICs	+	R	5
22-006-D201, 20-005-D201 22-003-D001, 22-006-D001	bis(2-ethyl- hexyl)phthalate	+	J	8
22-007-S001, 22-008-S101 22-009-S001	benzoic acid acenaphthene pyrene butylbenzylphthalate bis(2-ethylhexyl)phthalate p-terphenyl-d14 (surrogate)	+	J	9
22-007-S001MS, 22-007-S001MSD, 20-003-D001, 20-005-D001	benzoic acid 2,4-dinitrophenol hexachlorocyclopentadiene	+	J	10
20-005-D201RE	4-nitroaniline	+	J	13
20-005-D201RE	all acid compounds	+/-	J/R	14

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



SUMMARY OF DATA QUALIFICATIONS

PAGE - 2

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
20-005-D201RE	all compounds associated with the internal standards chrysene-d12 perylene-d12	+/-	J/UJ	15
20-005-D001, 20-005-D101	all analytes	+/-	J/UJ	16
all water samples	pentachloro- phenol	+/-	J/R	17

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

0000040

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

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

22-003-D001

Client: NAVAL WEAPONS/COLTSNECKMatrix: SEDIMENTLab Sample ID: 9103L804-013Sample wt/vol: 30.0 (g/mL) GLab File ID: V032816Level: (low/med) LOWDate Received: 03/05/91% Moisture: not dec. 26 dec.Date Extracted: 03/12/91Extraction: (SepF/Cont/Sonc) SONCDate Analyzed: 03/28/91GPC Cleanup: (Y/N) YpH: 8.3Dilution Factor: 1.11

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) ug/Kg

108-95-2	Phenol	500	U
111-44-4	bis(2-Chloroethyl)ether	500	U
95-57-8	2-Chlorophenol	500	U
541-73-1	1,3-Dichlorobenzene	500	U
106-46-7	1,4-Dichlorobenzene	500	U
100-51-6	Benzyl alcohol	500	U
95-50-1	1,2-Dichlorobenzene	500	U
95-48-7	2-Methylphenol	500	U
108-60-1	bis(2-Chloroisopropyl)ether	500	U
106-44-5	4-Methylphenol	500	U
621-64-7	N-Nitroso-Di-n-propylamine	500	U
67-72-1	Hexachloroethane	500	U
98-95-3	Nitrobenzene	500	U
78-59-1	Isophorone	500	U
88-75-5	2-Nitrophenol	500	U
105-67-9	2,4-Dimethylphenol	500	U
65-85-0	Benzoic acid	2500	U
111-91-1	bis(2-Chloroethoxy)methane	500	U
120-83-2	2,4-Dichlorophenol	500	U
120-82-1	1,2,4-Trichlorobenzene	500	U
91-20-3	Naphthalene	500	U
106-47-8	4-Chloroaniline	500	U
87-68-3	Hexachlorobutadiene	500	U
59-50-7	4-Chloro-3-methylphenol	500	U
91-57-6	2-Methylnaphthalene	500	U
77-47-4	Hexachlorocyclopentadiene	500	U
88-06-2	2,4,6-Trichlorophenol	500	U
95-95-4	2,4,5-Trichlorophenol	2500	U
91-58-7	2-Chloronaphthalene	500	U
88-74-4	2-Nitroaniline	2500	U
131-11-3	Dimethylphthalate	500	U
208-96-8	Acenaphthylene	500	U
606-20-2	2,6-Dinitrotoluene	500	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000041 CLIENT SAMPLE NO.

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

22-003-D001

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-013

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V032816

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 26 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/28/91

GPC Cleanup: (Y/N) Y pH: 8.3 Dilution Factor: 1.11

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
99-09-2	3-Nitroaniline	2500	U
83-32-9	Acenaphthene	500	U
51-28-5	2,4-Dinitrophenol	2500	U
100-02-7	4-Nitrophenol	2500	U
132-64-9	Dibenzofuran	500	U
121-14-2	2,4-Dinitrotoluene	500	U
84-66-2	Diethylphthalate	500	U
7005-72-3	4-Chlorophenyl-phenylether	500	U
86-73-7	Fluorene	500	U
100-01-6	4-Nitroaniline	2500	U
534-52-1	4,6-Dinitro-2-methylphenol	2500	U
86-30-6	N-Nitrosodiphenylamine (1)	500	U
101-55-3	4-Bromophenyl-phenylether	500	U
118-74-1	Hexachlorobenzene	500	U
87-86-5	Pentachlorophenol	2500	U
85-01-8	Phenanthrene	610	
120-12-7	Anthracene	71	J
84-74-2	Di-n-Butylphthalate	69	J
206-44-0	Fluoranthene	1500	
129-00-0	Pyrene	1100	
85-68-7	Butylbenzylphthalate	500	U
91-94-1	3,3'-Dichlorobenzidine	990	U
56-55-3	Benzo(a)anthracene	490	J
218-01-9	Chrysene	730	
117-81-7	bis(2-Ethylhexyl)phthalate	500	U
117-84-0	Di-n-Octyl phthalate	500	U
205-99-2	Benzo(b)fluoranthene	630	
207-08-9	Benzo(k)fluoranthene	550	
50-32-8	Benzo(a)pyrene	460	J
193-39-5	Indeno(1,2,3-cd)pyrene	390	J
53-70-3	Dibenzo(a,h)anthracene	64	J
191-24-2	Benzo(g,h,i)perylene	440	J

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

12/88 Rev.

00011

0000042

1F

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

22-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-013

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V032816

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 26 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/28/91

GPC Cleanup: (Y/N) Y pH: 8.3 Dilution Factor: 1.11

CONCENTRATION UNITS:

Number TICs found: 9 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.43	200	JAB <i>RS</i>
2.	ALDOL CONDENSATE	8.12	2000	JA
3.	ALDOL CONDENSATE	9.05	200	JA
4.	UNKNOWN	10.08	300	J
5.	ALDOL CONDENSATE	10.32	400	JA
6.	UNKNOWN	29.43	300	J
7.	ALKANE	31.33	200	J
8.	PAH	34.95	400	J
9.	ALKANE	37.32	500	J

0000085

CLIENT SAMPLE NO.

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

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

22-006-D001

Client: NAVAL WEAPONS/COLTSNECKMatrix: SEDIMENTLab Sample ID: 9103L804-016Sample wt/vol: 30.6 (g/mL) GLab File ID: V032817Level: (low/med) LOWDate Received: 03/05/91% Moisture: not dec. 31 dec.Date Extracted: 03/12/91Extraction: (SepF/Cont/Sonc) SONCDate Analyzed: 03/28/91GPC Cleanup: (Y/N) Y pH: 7.7Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
108-95-2	Phenol	520	U
111-44-4	bis(2-Chloroethyl)ether	520	U
95-57-8	2-Chlorophenol	520	U
541-73-1	1,3-Dichlorobenzene	520	U
106-46-7	1,4-Dichlorobenzene	520	U
100-51-6	Benzyl alcohol	520	U
95-50-1	1,2-Dichlorobenzene	520	U
95-48-7	2-Methylphenol	520	U
108-60-1	bis(2-Chloroisopropyl)ether	520	U
106-44-5	4-Methylphenol	520	U
621-64-7	N-Nitroso-Di-n-propylamine	520	U
67-72-1	Hexachloroethane	520	U
98-95-3	Nitrobenzene	520	U
78-59-1	Isophorone	520	U
88-75-5	2-Nitrophenol	520	U
105-67-9	2,4-Dimethylphenol	520	U
65-85-0	Benzoic acid	2600	U
111-91-1	bis(2-Chloroethoxy)methane	520	U
120-83-2	2,4-Dichlorophenol	520	U
120-82-1	1,2,4-Trichlorobenzene	520	U
91-20-3	Naphthalene	520	U
106-47-8	4-Chloroaniline	520	U
87-68-3	Hexachlorobutadiene	520	U
59-50-7	4-Chloro-3-methylphenol	520	U
91-57-6	2-Methylnaphthalene	68	J
77-47-4	Hexachlorocyclopentadiene	520	U
88-06-2	2,4,6-Trichlorophenol	520	U
95-95-4	2,4,5-Trichlorophenol	2600	U
91-58-7	2-Chloronaphthalene	520	U
88-74-4	2-Nitroaniline	2600	U
131-11-3	Dimethylphthalate	520	U
208-96-8	Acenaphthylene	520	U
606-20-2	2,6-Dinitrotoluene	520	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000085 CLIENT SAMPLE NO.

22-006-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-016

Sample wt/vol: 30.6 (g/mL) G Lab File ID: V032817

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 31 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/28/91

GPC Cleanup: (Y/N) Y pH: 7.7 Dilution Factor: 1.11

CONCENTRATION UNITS:

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

99-09-2-----	3-Nitroaniline	2600	U
83-32-9-----	Acenaphthene	300	J
51-28-5-----	2,4-Dinitrophenol	2600	U
100-02-7-----	4-Nitrophenol	2600	U
132-64-9-----	Dibenzofuran	950	
121-14-2-----	2,4-Dinitrotoluene	520	U
84-66-2-----	Diethylphthalate	520	U
7005-72-3-----	4-Chlorophenyl-phenylether	520	U
86-73-7-----	Fluorene	150	J
100-01-6-----	4-Nitroaniline	2600	U
534-52-1-----	4,6-Dinitro-2-methylphenol	2600	U
86-30-6-----	N-Nitrosodiphenylamine (1)	520	U
101-55-3-----	4-Bromophenyl-phenylether	520	U
118-74-1-----	Hexachlorobenzene	520	U
87-86-5-----	Pentachlorophenol	2600	U
85-01-8-----	Phenanthrene	6300	
120-12-7-----	Anthracene	880	
84-74-2-----	Di-n-Butylphthalate	68	J
206-44-0-----	Fluoranthene	5000	
129-00-0-----	Pyrene	3300	
85-68-7-----	Butylbenzylphthalate	520	U
91-94-1-----	3,3'-Dichlorobenzidine	1000	U
56-55-3-----	Benzo(a)anthracene	1800	
218-01-9-----	Chrysene	1700	
117-81-7-----	bis(2-Ethylhexyl)phthalate	77	J
117-84-0-----	Di-n-Octyl phthalate	520	U
205-99-2-----	Benzo(b)fluoranthene	1200	
207-08-9-----	Benzo(k)fluoranthene	1200	
50-32-8-----	Benzo(a)pyrene	970	
193-39-5-----	Indeno(1,2,3-cd)pyrene	780	
53-70-3-----	Dibenzo(a,h)anthracene	220	J
191-24-2-----	Benzo(g,h,i)perylene	830	

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

12/88 Rev.

00014

0000087

CLIENT SAMPLE NO.

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

22-006-D001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000Client: NAVAL WEAPONS/COLTSNECKMatrix: SEDIMENT Lab Sample ID: 9103L804-016Sample wt/vol: 30.6 (g/mL) G Lab File ID: V032817Level: (low/med) LOW Date Received: 03/05/91% Moisture: not dec. 31 dec. Date Extracted: 03/12/91Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/28/91GPC Cleanup: (Y/N) Y pH: 7.7 Dilution Factor: 1.11Number TICs found: 22CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.43	300	JAB <i>15</i>
2.	ALDOL CONDENSATE	8.12	2000	JA
3.	ALDOL CONDENSATE	9.07	300	JA
4.	UNKNOWN	10.10	600	J
5.	ALDOL CONDENSATE	10.33	600	JA
6.	UNKNOWN	19.53	200	J
7.	PAH	21.85	2000	J
8.	PAH	22.10	500	J
9.	UNKNOWN	23.03	2000	J
10.	PAH	23.83	500	J
11.	PAH	23.92	900	J
12.	PAH	24.18	800	J
13.	PAH	24.68	300	J
14.	UNKNOWN	24.77	1000	J
15.	UNKNOWN	24.85	400	J
16.	UNKNOWN	25.53	500	J
17.	UNKNOWN	25.70	700	J
18.	UNKNOWN	28.98	200	J
19.	UNKNOWN	29.45	600	J
20.	UNKNOWN	29.55	300	J
21.	PAH	34.97	1000	J
22.	ALKANE	37.33	700	J

0000154

CLIENT SAMPLE NO.

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

22-006-D201

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000Client: NAVAL WEAPONS/COLTSNECKMatrix: WATER Lab Sample ID: 9103L804-017Sample wt/vol: 860 (g/mL) ML Lab File ID: V032814Level: (low/med) LOW Date Received: 03/05/91% Moisture: not dec. dec. Date Extracted: 03/10/91Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/28/91GPC 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	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

0000753 CLIENT SAMPLE NO.

22-006-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-017

Sample wt/vol: 860 (g/mL) ML Lab File ID: V032814

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. dec. Date Extracted: 03/10/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/28/91

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 R 17
85-01-8-----	Phenanthrene	12	U
120-12-7-----	Anthracene	12	U
84-74-2-----	Di-n-Butylphthalate	212 U	JB 4
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	212 U	JB 4
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

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

22-006-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-017

Sample wt/vol: 860 (g/mL) ML Lab File ID: V032814

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. _____ dec. Date Extracted: 03/10/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/28/91

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

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

Number TICs found: 14

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.40	60	JB <i>RS</i>
2.	UNKNOWN	12.35	5	J
3.	UNKNOWN	21.97	10	JB <i>RS</i>
4.	UNKNOWN	22.82	20	JB <i>RS</i>
5.	UNKNOWN	23.02	40	J
6.	HYDROCARBON	25.15	2000	JB <i>RS</i>
7.	ALKANE	25.35	70	J
8.	UNKNOWN	25.62	70	J
9.	HYDROCARBON	25.78	50	JB <i>RS</i>
10.	UNKNOWN	26.03	80	JB <i>RS</i>
11.	UNKNOWN	26.72	7	J
12.	HYDROCARBON	27.27	60	JB <i>RS</i>
13.	UNKNOWN	28.08	60	JB
14.	UNKNOWN	30.67	30	JB ↓

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000182 CLIENT SAMPLE NO.

22-007-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-018

Sample wt/vol: 30.2 (g/mL) G Lab File ID: V032906

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.11

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

CAS NO.	COMPOUND		
108-95-2	Phenol	440	U
111-44-4	bis(2-Chloroethyl)ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
100-51-6	Benzyl alcohol	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	bis(2-Chloroisopropyl)ether	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-Di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
65-85-0	Benzoic acid	2200	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	2200	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	2200	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U

0000183

CLIENT SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

22-007-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-018

Sample wt/vol: 30.2 (g/mL) G Lab File ID: V032906

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.11

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
99-09-2	3-Nitroaniline	2200	U
83-32-9	Acenaphthene	440	U
51-28-5	2,4-Dinitrophenol	2200	U
100-02-7	4-Nitrophenol	2200	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	2200	U
534-52-1	4,6-Dinitro-2-methylphenol	2200	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	2200	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	440	U
84-74-2	Di-n-Butylphthalate	58	J
206-44-0	Fluoranthene	110	J
129-00-0	Pyrene	74	J
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	880	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)phthalate	440	U
117-84-0	Di-n-Octyl phthalate	440	U
205-99-2	Benzo(b)fluoranthene	71	J
207-08-9	Benzo(k)fluoranthene	52	J
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenzo(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

00020

1F
 SEMIVOLATILE ORGANICS ANALYSIS SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

0000104 CLIENT SAMPLE NO.

22-007-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-018

Sample wt/vol: 30.2 (g/mL) G Lab File ID: V032906

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.11

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

Number TICs found: 11

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.22	300	JAB <i>RS</i>
2.	ALDOL CONDENSATE	7.93	2000	JA
3.	ALDOL CONDENSATE	8.17	200	JA
4.	UNKNOWN	9.97	300	J
5.	ALDOL CONDENSATE	10.22	200	JA
6.	UNKNOWN	19.50	100	J
7.	PHTHALATE	23.02	200	J
8.	UNKNOWN	29.43	500	J
9.	ALKANE	33.83	300	J
10.	ALKANE	37.32	200	J
11.	UNKNOWN	43.10	1000	J

0000213

CLIENT SAMPLE NO.

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

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

22-008-s001

Client: NAVAL WEAPONS/COLTSNECKMatrix: SOILLab Sample ID: 9103L804-020Sample wt/vol: 30.7 (g/mL) GLab File ID: V040505Level: (low/med) LOWDate Received: 03/05/91% Moisture: not dec. 20 dec.Date Extracted: 03/12/91Extraction: (SepF/Cont/Sonc) SONCDate Analyzed: 04/05/91GPC Cleanup: (Y/N) NpH: 5.6Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
108-95-2	Phenol	450	U
111-44-4	bis(2-Chloroethyl)ether	450	U
95-57-8	2-Chlorophenol	450	U
541-73-1	1,3-Dichlorobenzene	450	U
106-46-7	1,4-Dichlorobenzene	450	U
100-51-6	Benzyl alcohol	450	U
95-50-1	1,2-Dichlorobenzene	450	U
95-48-7	2-Methylphenol	450	U
108-60-1	bis(2-Chloroisopropyl)ether	450	U
106-44-5	4-Methylphenol	450	U
621-64-7	N-Nitroso-Di-n-propylamine	450	U
67-72-1	Hexachloroethane	450	U
98-95-3	Nitrobenzene	450	U
78-59-1	Isophorone	450	U
88-75-5	2-Nitrophenol	450	U
105-67-9	2,4-Dimethylphenol	450	U
65-85-0	Benzoic acid	54	J
111-91-1	bis(2-Chloroethoxy)methane	450	U
120-83-2	2,4-Dichlorophenol	450	U
120-82-1	1,2,4-Trichlorobenzene	450	U
91-20-3	Naphthalene	450	U
106-47-8	4-Chloroaniline	450	U
87-68-3	Hexachlorobutadiene	450	U
59-50-7	4-Chloro-3-methylphenol	450	U
91-57-6	2-Methylnaphthalene	450	U
77-47-4	Hexachlorocyclopentadiene	450	U
88-06-2	2,4,6-Trichlorophenol	450	U
95-95-4	2,4,5-Trichlorophenol	2300	U
91-58-7	2-Chloronaphthalene	450	U
88-74-4	2-Nitroaniline	2300	U
131-11-3	Dimethylphthalate	450	U
208-96-8	Acenaphthylene	450	U
606-20-2	2,6-Dinitrotoluene	450	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

U U U U Z 16
CLIENT SAMPLE NO.

22-008-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-020

Sample wt/vol: 30.7 (g/mL) G Lab File ID: V040505

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 20 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/05/91

GPC Cleanup: (Y/N) N pH: 5.6 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
99-09-2	3-Nitroaniline	2300	U
83-32-9	Acenaphthene	450	U
51-28-5	2,4-Dinitrophenol	2300	U
100-02-7	4-Nitrophenol	2300	U
132-64-9	Dibenzofuran	450	U
121-14-2	2,4-Dinitrotoluene	450	U
84-66-2	Diethylphthalate	450	U
7005-72-3	4-Chlorophenyl-phenylether	450	U
86-73-7	Fluorene	450	U
100-01-6	4-Nitroaniline	2300	U
534-52-1	4,6-Dinitro-2-methylphenol	2300	U
86-30-6	N-Nitrosodiphenylamine (1)	450	U
101-55-3	4-Bromophenyl-phenylether	450	U
118-74-1	Hexachlorobenzene	450	U
87-86-5	Pentachlorophenol	2300	U
85-01-8	Phenanthrene	230	J
120-12-7	Anthracene	82	J
84-74-2	Di-n-Butylphthalate	450	U
206-44-0	Fluoranthene	580	
129-00-0	Pyrene	570	
85-68-7	Butylbenzylphthalate	450	U
91-94-1	3,3'-Dichlorobenzidine	910	U
56-55-3	Benzo(a)anthracene	280	J
218-01-9	Chrysene	270	J
117-81-7	bis(2-Ethylhexyl)phthalate	450	U
117-84-0	Di-n-Octyl phthalate	450	U
205-99-2	Benzo(b)fluoranthene	260	J
207-08-9	Benzo(k)fluoranthene	200	J
50-32-8	Benzo(a)pyrene	210	J
193-39-5	Indeno(1,2,3-cd)pyrene	97	J
53-70-3	Dibenzo(a,h)anthracene	450	U
191-24-2	Benzo(g,h,i)perylene	100	J

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0000215

CLIENT SAMPLE NO.

22-008-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-020

Sample wt/vol: 30.7 (g/mL) G Lab File ID: V040505

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 20 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/05/91

GPC Cleanup: (Y/N) N pH: 5.6 Dilution Factor: 1.11

CONCENTRATION UNITS:

Number TICs found: 18 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.50	200	JAB <i>RS</i>
2.	ALDOL CONDENSATE	8.17	1000	JA
3.	UNKNOWN	10.10	200	J
4.	ALKANE	17.93	200	J
5.	ALKANE	19.35	300	J
6.	ALKANE	20.03	300	J
7.	ALKANE	20.70	500	J
8.	ALKANE	20.78	500	J
9.	ALKANE	21.97	500	J
10.	ALKANE	22.10	400	J
11.	ALKANE	23.18	500	J
12.	UNKNOWN	23.87	200	J
13.	UNKNOWN	24.15	200	J
14.	ALKANE	24.33	400	J
15.	ALKANE	25.43	300	J
16.	ALKANE	27.50	200	J
17.	ALKANE	29.43	300	J
18.	PAH	29.43	300	J

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

22-008-S101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-021

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V032908

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
108-95-2	Phenol	440	U
111-44-4	bis(2-Chloroethyl)ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
100-51-6	Benzyl alcohol	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	bis(2-Chloroisopropyl)ether	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-Di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
65-85-0	Benzoic acid	2200	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	2200	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	2200	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

22-008-S101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-021

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V032908

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.11

CONCENTRATION UNITS:

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

99-09-2	3-Nitroaniline	2200	U
83-32-9	Acenaphthene	440	U
51-28-5	2,4-Dinitrophenol	2200	U
100-02-7	4-Nitrophenol	2200	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	2200	U
534-52-1	4,6-Dinitro-2-methylphenol	2200	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	2200	U
85-01-8	Phenanthrene	81	J
120-12-7	Anthracene	440	U
84-74-2	Di-n-Butylphthalate	71	J
206-44-0	Fluoranthene	190	J
129-00-0	Pyrene	120	J
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	880	U
56-55-3	Benzo(a)anthracene	64	J
218-01-9	Chrysene	73	J
117-81-7	bis(2-Ethylhexyl)phthalate	97	J
117-84-0	Di-n-Octyl phthalate	440	U
205-99-2	Benzo(b)fluoranthene	62	J
207-08-9	Benzo(k)fluoranthene	60	J
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
53-70-3	Dibenzo(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

12/88 Rev.

00026

0000268

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

22-008-S101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-021

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V032908

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.11

CONCENTRATION UNITS:

Number TICs found: 17 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.43	300	JAB <i>RS</i>
2.	ALDOL CONDENSATE	8.12	1000	JA
3.	UNKNOWN	10.08	200	J
4.	ALKANE	17.95	300	J
5.	ALKANE	19.37	400	J
6.	ALKANE	20.03	400	J
7.	ALKANE	20.72	700	J
8.	ALKANE	20.80	800	J
9.	ALKANE	21.98	700	J
10.	ALKANE	22.12	500	J
11.	ALKANE	23.18	900	J
12.	ALKANE	24.35	600	J
13.	ALKANE	25.45	400	J
14.	ALKANE	27.50	200	J
15.	ADIPATE	28.12	200	J
16.	ADIPATE	28.58	70000	J
17.	UNKNOWN	29.43	700	J

00027

0000311

CLIENT SAMPLE NO.

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

22-009-S001

Lab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000Client: NAVAL WEAPONS/COLTSNECKMatrix: SOILLab Sample ID: 9103L804-023Sample wt/vol: 30.1 (g/mL) GLab File ID: V032909Level: (low/med) LOWDate Received: 03/05/91% Moisture: not dec. 23 dec.Date Extracted: 03/12/91Extraction: (SepF/Cont/Sonc) SONCDate Analyzed: 03/29/91GPC Cleanup: (Y/N) YpH: 5.7Dilution Factor: 1.11

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

108-95-2-----	Phenol	480	U
111-44-4-----	bis(2-Chloroethyl)ether	480	U
95-57-8-----	2-Chlorophenol	480	U
541-73-1-----	1,3-Dichlorobenzene	480	U
106-46-7-----	1,4-Dichlorobenzene	480	U
100-51-6-----	Benzyl alcohol	480	U
95-50-1-----	1,2-Dichlorobenzene	480	U
95-48-7-----	2-Methylphenol	480	U
108-60-1-----	bis(2-Chloroisopropyl)ether	480	U
106-44-5-----	4-Methylphenol	480	U
621-64-7-----	N-Nitroso-Di-n-propylamine	480	U
67-72-1-----	Hexachloroethane	480	U
98-95-3-----	Nitrobenzene	480	U
78-59-1-----	Isophorone	480	U
88-75-5-----	2-Nitrophenol	480	U
105-67-9-----	2,4-Dimethylphenol	480	U
65-85-0-----	Benzoic acid	2400	U
111-91-1-----	bis(2-Chloroethoxy)methane	480	U
120-83-2-----	2,4-Dichlorophenol	480	U
120-82-1-----	1,2,4-Trichlorobenzene	480	U
91-20-3-----	Naphthalene	480	U
106-47-8-----	4-Chloroaniline	480	U
87-68-3-----	Hexachlorobutadiene	480	U
59-50-7-----	4-Chloro-3-methylphenol	480	U
91-57-6-----	2-Methylnaphthalene	480	U
77-47-4-----	Hexachlorocyclopentadiene	480	U
88-06-2-----	2,4,6-Trichlorophenol	480	U
95-95-4-----	2,4,5-Trichlorophenol	2400	U
91-58-7-----	2-Chloronaphthalene	480	U
88-74-4-----	2-Nitroaniline	2400	U
131-11-3-----	Dimethylphthalate	480	U
208-96-8-----	Acenaphthylene	480	U
606-20-2-----	2,6-Dinitrotoluene	480	U

0000312

1C

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

22-009-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-023

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V032909

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 23 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.7 Dilution Factor: 1.11

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

CAS NO.	COMPOUND	CONCENTRATION UNITS:	(ug/L or ug/Kg) ug/Kg
99-09-2	3-Nitroaniline	2400	U
83-32-9	Acenaphthene	480	U
51-28-5	2,4-Dinitrophenol	2400	U
100-02-7	4-Nitrophenol	2400	U
132-64-9	Dibenzofuran	480	U
121-14-2	2,4-Dinitrotoluene	480	U
84-66-2	Diethylphthalate	480	U
7005-72-3	4-Chlorophenyl-phenylether	480	U
86-73-7	Fluorene	480	U
100-01-6	4-Nitroaniline	2400	U
534-52-1	4,6-Dinitro-2-methylphenol	2400	U
86-30-6	N-Nitrosodiphenylamine (1)	480	U
101-55-3	4-Bromophenyl-phenylether	480	U
118-74-1	Hexachlorobenzene	480	U
87-86-5	Pentachlorophenol	2400	U
85-01-8	Phenanthrene	480	U
120-12-7	Anthracene	480	U
84-74-2	Di-n-Butylphthalate	60	J
206-44-0	Fluoranthene	480	U
129-00-0	Pyrene	480	U
85-68-7	Butylbenzylphthalate	480	U
91-94-1	3,3'-Dichlorobenzidine	950	U
56-55-3	Benzo(a)anthracene	480	U
218-01-9	Chrysene	480	U
117-81-7	bis(2-Ethylhexyl)phthalate	480	U
117-84-0	Di-n-Octyl phthalate	480	U
205-99-2	Benzo(b)fluoranthene	480	U
207-08-9	Benzo(k)fluoranthene	480	U
50-32-8	Benzo(a)pyrene	480	U
193-39-5	Indeno(1,2,3-cd)pyrene	480	U
53-70-3	Dibenzo(a,h)anthracene	480	U
191-24-2	Benzo(g,h,i)perylene	480	U

(1) - Cannot be separated from Diphenylamine

00029

0000313

1F

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

22-009-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-023

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V032909

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 23 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 5.7 Dilution Factor: 1.11

CONCENTRATION UNITS:

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.45	400	JAB <i>RS</i>
2.	ALDOL CONDENSATE	8.13	2000	JA
3.	ALDOL CONDENSATE	8.35	200	JA
4.	UNKNOWN	10.10	300	J
5.	UNKNOWN	19.52	200	J
6.	PHTHALATE	23.02	300	J
7.	UNKNOWN	28.55	300	J
8.	UNKNOWN	29.45	700	J
9.	ALKANE	33.85	200	J
10.	ALKANE	37.33	200	J

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000333 CLIENT SAMPLE NO.

20-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-030

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V032918

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 34 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.11

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>	
108-95-2	Phenol	560	U
111-44-4	bis(2-Chloroethyl)ether	560	U
95-57-8	2-Chlorophenol	560	U
541-73-1	1,3-Dichlorobenzene	560	U
106-46-7	1,4-Dichlorobenzene	560	U
100-51-6	Benzyl alcohol	560	U
95-50-1	1,2-Dichlorobenzene	560	U
95-48-7	2-Methylphenol	560	U
108-60-1	bis(2-Chloroisopropyl)ether	560	U
106-44-5	4-Methylphenol	560	U
621-64-7	N-Nitroso-Di-n-propylamine	560	U
67-72-1	Hexachloroethane	560	U
98-95-3	Nitrobenzene	560	U
78-59-1	Isophorone	560	U
88-75-5	2-Nitrophenol	560	U
105-67-9	2,4-Dimethylphenol	560	U
65-85-0	Benzoic acid	2800	U
111-91-1	bis(2-Chloroethoxy)methane	560	U
120-83-2	2,4-Dichlorophenol	560	U
120-82-1	1,2,4-Trichlorobenzene	560	U
91-20-3	Naphthalene	560	U
106-47-8	4-Chloroaniline	560	U
87-68-3	Hexachlorobutadiene	560	U
59-50-7	4-Chloro-3-methylphenol	560	U
91-57-6	2-Methylnaphthalene	560	U
77-47-4	Hexachlorocyclopentadiene	560	U
88-06-2	2,4,6-Trichlorophenol	560	U
95-95-4	2,4,5-Trichlorophenol	2800	U
91-58-7	2-Chloronaphthalene	560	U
88-74-4	2-Nitroaniline	2800	U
131-11-3	Dimethylphthalate	560	U
208-96-8	Acenaphthylene	560	U
606-20-2	2,6-Dinitrotoluene	560	U

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET

0000334

CLIENT SAMPLE NO.

20-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-030

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V032918

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 34 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.11

CONCENTRATION UNITS:

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

99-09-2	3-Nitroaniline	2800	U
83-32-9	Acenaphthene	560	U
51-28-5	2,4-Dinitrophenol	2800	U
100-02-7	4-Nitrophenol	2800	U
132-64-9	Dibenzofuran	560	U
121-14-2	2,4-Dinitrotoluene	560	U
84-66-2	Diethylphthalate	560	U
7005-72-3	4-Chlorophenyl-phenylether	560	U
86-73-7	Fluorene	560	U
100-01-6	4-Nitroaniline	2800	U
534-52-1	4,6-Dinitro-2-methylphenol	2800	U
86-30-6	N-Nitrosodiphenylamine (1)	57 560	JB 2
101-55-3	4-Bromophenyl-phenylether	560	U
118-74-1	Hexachlorobenzene	560	U
87-86-5	Pentachlorophenol	2800	U
85-01-8	Phenanthrene	110	J
120-12-7	Anthracene	560	U
84-74-2	Di-n-Butylphthalate	78	J
206-44-0	Fluoranthene	260	J
129-00-0	Pyrene	260	J
85-68-7	Butylbenzylphthalate	560	U
91-94-1	3,3'-Dichlorobenzidine	1100	U
56-55-3	Benzo(a)anthracene	120	J
218-01-9	Chrysene	200	J
117-81-7	bis(2-Ethylhexyl)phthalate	450	J
117-84-0	Di-n-Octyl phthalate	560	U
205-99-2	Benzo(b)fluoranthene	230	J
207-08-9	Benzo(k)fluoranthene	170	J
50-32-8	Benzo(a)pyrene	150	J
193-39-5	Indeno(1,2,3-cd)pyrene	120	J
53-70-3	Dibenzo(a,h)anthracene	560	U
191-24-2	Benzo(g,h,i)perylene	160	J

(1) - Cannot be separated from Diphenylamine

0000335

CLIENT SAMPLE NO.

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

20-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-030

Sample wt/vol: 30.4 (g/mL) G Lab File ID: V032918

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 34 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.11

CONCENTRATION UNITS:

Number TICs found: 13 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.42	500	JAB
2.	ALDOL CONDENSATE	8.12	2000	JA
3.	ALDOL CONDENSATE	9.05	600	JA
4.	UNKNOWN	10.10	800	J
5.	ALDOL CONDENSATE	10.33	1000	JA
6.	ALKANE	25.45	200	J
7.	HYDROCARBON	29.47	900	J
8.	HYDROCARBON	31.47	300	J
9.	ALKANE	37.35	800	J
10.	UNKNOWN	40.60	200	J
11.	UNKNOWN	42.33	200	J
12.	UNKNOWN	43.13	300	J
13.	UNKNOWN	43.58	400	J

00033

0000382

1B

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

20-005-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-032

Sample wt/vol: 30.6 (g/mL) G Lab File ID: V032919

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 53 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91

GPC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 1.11

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

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) ug/Kg	
108-95-2	Phenol	780	U
111-44-4	bis(2-Chloroethyl)ether	780	U
95-57-8	2-Chlorophenol	780	U
541-73-1	1,3-Dichlorobenzene	780	U
106-46-7	1,4-Dichlorobenzene	780	U
100-51-6	Benzyl alcohol	780	U
95-50-1	1,2-Dichlorobenzene	780	U
95-48-7	2-Methylphenol	780	U
108-60-1	bis(2-Chloroisopropyl)ether	780	U
106-44-5	4-Methylphenol	780	U
621-64-7	N-Nitroso-Di-n-propylamine	780	U
67-72-1	Hexachloroethane	780	U
98-95-3	Nitrobenzene	780	U
78-59-1	Isophorone	780	U
88-75-5	2-Nitrophenol	780	U
105-67-9	2,4-Dimethylphenol	780	U
65-85-0	Benzoic acid	3900	U
111-91-1	bis(2-Chloroethoxy)methane	780	U
120-83-2	2,4-Dichlorophenol	780	U
120-82-1	1,2,4-Trichlorobenzene	780	U
91-20-3	Naphthalene	780	U
106-47-8	4-Chloroaniline	780	U
87-68-3	Hexachlorobutadiene	780	U
59-50-7	4-Chloro-3-methylphenol	780	U
91-57-6	2-Methylnaphthalene	780	U
77-47-4	Hexachlorocyclopentadiene	780	U
88-06-2	2,4,6-Trichlorophenol	780	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	780	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	780	U
208-96-8	Acenaphthylene	88	J
606-20-2	2,6-Dinitrotoluene	780	U

Handwritten notes: 'F 16' and a large arrow pointing downwards.

0000384

CLIENT SAMPLE NO.

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDSLab Name: Roy F. Weston, Inc. Work Order: 1771-15-03-0000

20-005-D001

Client: NAVAL WEAPONS/COLTSNECKMatrix: SEDIMENT Lab Sample ID: 9103L804-032Sample wt/vol: 30.6 (g/mL) G Lab File ID: V032919Level: (low/med) LOW Date Received: 03/05/91% Moisture: not dec. 53 dec. Date Extracted: 03/12/91Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/29/91GPC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 1.11

CONCENTRATION UNITS:

Number TICs found: 19 (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.42	600	JAB <i>RS</i>
2.	CYCLOHEXENONE	7.87	300	J
3.	ALDOL CONDENSATE	8.10	3000	JA
4.	UNKNOWN	8.87	500	J
5.	ALDOL CONDENSATE	9.05	800	JA
6.	UNKNOWN	10.10	1000	J
7.	ALDOL CONDENSATE	10.32	1000	JA
8.	PHTHALATE	23.02	300	J
9.	UNKNOWN	23.88	800	J
10.	PAH	24.17	800	J
11.	UNKNOWN	25.45	500	J
12.	PAH	27.52	1000	J
13.	PAH	29.45	4000	J
14.	PAH	35.00	2000	J
15.	ALKANE	37.35	4000	J
16.	UNKNOWN	38.63	400	J
17.	UNKNOWN	39.67	500	J
18.	UNKNOWN	40.58	600	J
19.	ALKANE	42.40	1000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

U U U U 4 4 4

CLIENT SAMPLE NO.

20-005-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-034

Sample wt/vol: 890 (g/mL) ML Lab File ID: V032815

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. dec. Date Extracted: 03/10/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/28/91

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

0000445

1C

CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS SHEET

20-005-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-034

Sample wt/vol: 890 (g/mL) ML Lab File ID: V032815

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. dec. Date Extracted: 03/10/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/28/91

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 R 17
85-01-8	Phenanthrene	11	U
120-12-7	Anthracene	11	U
84-74-2	Di-n-Butylphthalate	11U	U SB 4
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

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

U U U U 4 4 b

CLIENT SAMPLE NO.

20-005-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-034

Sample wt/vol: 890 (g/mL) ML Lab File ID: V032815

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. _____ dec. Date Extracted: 03/10/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 03/28/91

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

Number TICs found: 12 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.38	40	JB RS
2.	UNKNOWN	12.35	6	JB
3.	UNKNOWN	21.97	10	JB RS
4.	UNKNOWN	22.82	10	JB
5.	HYDROCARBON	23.02	30	JB
6.	HYDROCARBON	25.13	1000	JB RS
7.	UNKNOWN	25.35	30	JB
8.	UNKNOWN	25.67	20	JB
9.	UNKNOWN	25.80	20	JB
10.	UNKNOWN	26.05	30	JB
11.	UNKNOWN	27.28	20	JB
12.	UNKNOWN	28.08	20	JB

1B
SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

20-005-D201RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-034

Sample wt/vol: 840 (g/mL) ML Lab File ID: V040514

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. dec. Date Extracted: 04/01/91

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/05/91

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	8	JB	14
111-44-4	bis(2-Chloroethyl)ether	12	UR	14
95-57-8	2-Chlorophenol	14	BR	14
541-73-1	1,3-Dichlorobenzene	12	UR	
106-46-7	1,4-Dichlorobenzene	4	JB	
100-51-6	Benzyl alcohol	12	UR	
95-50-1	1,2-Dichlorobenzene	12	U	
95-48-7	2-Methylphenol	12	U	14
108-60-1	bis(2-Chloroisopropyl)ether	12	U	
106-44-5	4-Methylphenol	12	U	14
621-64-7	N-Nitroso-Di-n-propylamine	6	JB	
67-72-1	Hexachloroethane	12	UR	
98-95-3	Nitrobenzene	12	U	
78-59-1	Isophorone	12	U	
88-75-5	2-Nitrophenol	12	U	14
105-67-9	2,4-Dimethylphenol	12	U	14
65-85-0	Benzoic acid	60	U	14
111-91-1	bis(2-Chloroethoxy)methane	12	U	
120-83-2	2,4-Dichlorophenol	12	U	14
120-82-1	1,2,4-Trichlorobenzene	5	JB	
91-20-3	Naphthalene	12	UR	
106-47-8	4-Chloroaniline	12	U	
87-68-3	Hexachlorobutadiene	12	U	
59-50-7	4-Chloro-3-methylphenol	13	BR	14
91-57-6	2-Methylnaphthalene	12	UR	
77-47-4	Hexachlorocyclopentadiene	12	U	
88-06-2	2,4,6-Trichlorophenol	12	U	14
95-95-4	2,4,5-Trichlorophenol	60	U	14
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

0000469 CLIENT SAMPLE NO.

20-005-D201RE

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-034
 Sample wt/vol: 840 (g/mL) ML Lab File ID: V040514
 Level: (low/med) LOW Date Received: 03/05/91
 % Moisture: not dec. dec. Date Extracted: 04/01/91
 Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 04/05/91
 GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	
99-09-2	3-Nitroaniline	60	U R
83-32-9	Acenaphthene	7	JB
51-28-5	2,4-Dinitrophenol	60	U R
100-02-7	4-Nitrophenol	60	U
132-64-9	Dibenzofuran	12	U
121-14-2	2,4-Dinitrotoluene	6	JB
84-66-2	Diethylphthalate	12	U R
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)	120	JB R
101-55-3	4-Bromophenyl-phenylether	12	U R
118-74-1	Hexachlorobenzene	12	U
87-86-5	Pentachlorophenol	6	JS R
85-01-8	Phenanthrene	12	U R
120-12-7	Anthracene	12	U
84-74-2	Di-n-Butylphthalate	12	U
206-44-0	Fluoranthene	12	U
129-00-0	Pyrene	10	JB
85-68-7	Butylbenzylphthalate	12	U R
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

14
14
14, 17

(1) - Cannot be separated from Diphenylamine

0000478

CLIENT SAMPLE NO.

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

20-005-D101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-037

Sample wt/vol: 30.2 (g/mL) G Lab File ID: V040103

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 57 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.11

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/Kg

CAS NO.	COMPOUND	CONCENTRATION UNITS:	(ug/L or ug/Kg)	ug/Kg
108-95-2	Phenol	850	U	5
111-44-4	bis(2-Chloroethyl) ether	850	U	16
95-57-8	2-Chlorophenol	850	U	
541-73-1	1,3-Dichlorobenzene	850	U	
106-46-7	1,4-Dichlorobenzene	850	U	
100-51-6	Benzyl alcohol	850	U	
95-50-1	1,2-Dichlorobenzene	850	U	
95-48-7	2-Methylphenol	850	U	
108-60-1	bis(2-Chloroisopropyl) ether	850	U	
106-44-5	4-Methylphenol	850	U	
621-64-7	N-Nitroso-Di-n-propylamine	850	U	
67-72-1	Hexachloroethane	850	U	
98-95-3	Nitrobenzene	850	U	
78-59-1	Isophorone	850	U	
88-75-5	2-Nitrophenol	850	U	
105-67-9	2,4-Dimethylphenol	850	U	
65-85-0	Benzoic acid	130	J	
111-91-1	bis(2-Chloroethoxy) methane	850	U	
120-83-2	2,4-Dichlorophenol	850	U	
120-82-1	1,2,4-Trichlorobenzene	850	U	
91-20-3	Naphthalene	850	U	
106-47-8	4-Chloroaniline	850	U	
87-68-3	Hexachlorobutadiene	850	U	
59-50-7	4-Chloro-3-methylphenol	850	U	
91-57-6	2-Methylnaphthalene	850	U	
77-47-4	Hexachlorocyclopentadiene	850	U	
88-06-2	2,4,6-Trichlorophenol	850	U	
95-95-4	2,4,5-Trichlorophenol	4300	U	
91-58-7	2-Chloronaphthalene	850	U	
88-74-4	2-Nitroaniline	4300	U	
131-11-3	Dimethylphthalate	850	U	
208-96-8	Acenaphthylene	850	U	
606-20-2	2,6-Dinitrotoluene	850	U	

1C
SEMIVOLATILE ORGANICS ANALYSIS SHEET 0000479

20-005-D101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-037

Sample wt/vol: 30.2 (g/mL) G Lab File ID: V040103

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 57 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.11

CONCENTRATION UNITS:

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

99-09-2	3-Nitroaniline	4300	U	16	
83-32-9	Acenaphthene	850	U		
51-28-5	2,4-Dinitrophenol	4300	U		
100-02-7	4-Nitrophenol	4300	U		
132-64-9	Dibenzofuran	850	U		
121-14-2	2,4-Dinitrotoluene	850	U		
84-66-2	Diethylphthalate	850	U		
7005-72-3	4-Chlorophenyl-phenylether	850	U		
86-73-7	Fluorene	850	U		
100-01-6	4-Nitroaniline	4300	U		
534-52-1	4,6-Dinitro-2-methylphenol	4300	U		
86-30-6	N-Nitrosodiphenylamine (1)	130 850	JB		2
101-55-3	4-Bromophenyl-phenylether	850	U		
118-74-1	Hexachlorobenzene	850	U		
87-86-5	Pentachlorophenol	4300	U		
85-01-8	Phenanthrene	1100			
120-12-7	Anthracene	210	J		
84-74-2	Di-n-Butylphthalate	200	J		
206-44-0	Fluoranthene	3400			
129-00-0	Pyrene	3900			
85-68-7	Butylbenzylphthalate	550	J		
91-94-1	3,3'-Dichlorobenzidine	1700	U		
56-55-3	Benzo(a)anthracene	1900			
218-01-9	Chrysene	2600			
117-81-7	bis(2-Ethylhexyl)phthalate	1200			
117-84-0	Di-n-Octyl phthalate	850	U		
205-99-2	Benzo(b)fluoranthene	2800			
207-08-9	Benzo(k)fluoranthene	2600			
50-32-8	Benzo(a)pyrene	2700			
193-39-5	Indeno(1,2,3-cd)pyrene	2000			
53-70-3	Dibenzo(a,h)anthracene	830	J		
191-24-2	Benzo(g,h,i)perylene	2400			

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2

12/88 Rev.

00043

1F
SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

U U U U 4 8 8 CLIENT SAMPLE NO.

20-005-D101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-037

Sample wt/vol: 30.2 (g/mL) G Lab File ID: V040103

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 57 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/01/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.11

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

Number TICs found: 24

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.22	800	JAB <i>RS</i>
2.	CYCLOHEXENONE	7.68	500	J
3.	ALDOL CONDENSATE	7.95	3000	JA
4.	UNKNOWN	8.72	700	J
5.	ALDOL CONDENSATE	8.92	1000	JA
6.	UNKNOWN	10.02	2000	J
7.	ALDOL CONDENSATE	10.23	2000	JA
8.	PHTHALATE	23.00	300	J
9.	UNKNOWN	23.87	900	J
10.	PAH	24.15	700	J
11.	PAH	25.43	500	J
12.	PAH	27.48	900	J
13.	ALKANE	29.40	4000	J
14.	PAH	30.30	800	J
15.	ALKANE	31.32	2000	J
16.	OCTADECENE	31.42	1000	J
17.	ALKANE	32.47	700	J
18.	UNKNOWN	33.07	700	J
19.	PAH	34.93	2000	J
20.	ALKANE	37.28	3000	J
21.	UNKNOWN	38.52	900	J
22.	UNKNOWN	39.50	600	J
23.	UNKNOWN	40.47	700	J
24.	ALKANE	42.27	1000	J

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis

Case No. 91032804 SDG No. LABORATORY R.F. WEST SITE COLTSNECK
LIONVILLE

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: 8/19/91

Verified By:

[Signature] Date: 8/20/91

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.

Sample 20-005-D201RE -

Extraction holding time was grossly exceeded.

Qualify all positive results as estimated (J)

and all non detects are rejected (R).

EMM
8-19-91

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

91LE0344-MBI-

- 22-003-D001 - R TIC#1
- 22-004-D001 - R TIC#1
- 22-007-S001 - R TIC#1
- 22-008-S001 - R TIC#1
- 22-008-S101 - R TIC#1
- 22-009-S001 - R TIC#1
- 20-003-D001 - R TIC#1
- N-Nitrosodiphenylamine - CRQL
- 20-005-D001 - R TIC#1
- 20-005-D101 - R TIC#1
- N-Nitrosodiphenylamine CRQL

91LE0326-MBI

- 22006-D201 - Di-n-butylphthalate, bis(2-ethylhexyl)phthalate - CRQL
- TICS 1, 3, 4, 6, 9, 10, 12-14 - R.
- 20-005-D201 - Di-n-butylphthalate - CRQL
- TICS 1, 3, 6-12 - R.

B) Field or rinse blank contamination

See above - none identified

91LE0428-MBI

- 20-005-D201RE -
- N-Nitrosodiphenylamine - CRQL
- *Spiking impurities present in blank.

C) Water blank contamination

See above

D) Trip blank contamination

None identified

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

3. SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure mass resolution, identification of compounds, and to some degree, the instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is bromofluorobenzene and for semi-volatiles is decafluorotriphenyl- phosphine.

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

No Action

EMM
8-19-91

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".

No Action

Emm
8-19-91

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

- * Initial Cal 3-21-91, INST IN501 - No Action
- * Initial Cal 3-25-91, INST 4500V - No Action
- * Initial Cal 4-3-91, INST 4500V - No Samples
- >30% RSD - 2,4-dinitrophenol, 4-Nitroaniline
- * Cont Cal 3-22-91, IN501, Samples: SBLKE0326-MB1
- I pos >25% - <50% - 2,4-dinitrophenol, 4-nitrophenol.
- * Cont Cal 3-26-91, 4500V - No Action
- * Cont Cal 3-28-91, 4500V - Samples 22-006-D201, 20-005-D201, 22-003-D001, 22-006-D001
- I pos >25% - <50% - bis(2-ethylhexyl)phthalate.
- * Cont Cal 3-29-91, 4500V - Samples 22-007-S001, 22-008-S101, 22-009-S001
- I pos >25% - <50% - benzoic acid, acenaphthene, pyrene, butyl benzyl phthalate, bis(2-ethylhexyl) phthalate, p-Terphenyl-d14 (surv.)
- * Cont Cal 3-29-91, 4500V, Samples 22-007-S001 MS, 22-007-S001 MSD, 20-003-D001, 20-005-D001
- I pos >25% - <50% - benzoic acid.

DATA ASSESSMENT:

5. CALIBRATION:

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

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

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

* Cont Cal 4-4-91, 4500V, Sample SBKED334-MB1 BS
I pos >25% - <50% - hexachlorocyclopentadiene, pyrene.

* Cont Cal 4-4-91, 4500V, Sample SBKED428-MB1
I pos >25% - <50% - 2,4-dinitrophenol, 4-nitrophenol, pyrene, butyl benzyl phthalate,
p-Terphenyl - (14 (surrogate))

* Cont Cal 4-5-91, 4500V, Samples SBKED334-MB1, 22-008-5001
No Action.

* Cont Cal 4-5-91, 4500V, Samples 20-005-D201 RE
I pos >25% - <50% - 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.

Sample 20-005-D201 contained 2 acid

Surrogates with recoveries below 10%. Qualify
all positive results (+) and reject all
non-detects.

5BCKLE0428-MB1 contained a base/neutral
and acid surrogate outside of QA/QC
Limits - No Action

[Signature]
8-19-91

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.

Sample 20-005-D201KE - I/US amps associated with the internal stds chrysene-d12 and perylene-d12, which were below lower control limits.

*EMM
8-19-91*

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

Erwin
8-19-91

DATA ASSESSMENT:

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

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

The water MS/MSD SBLKE0326-MB1 contained recoveries for pentachlorophenol <10%. Qualify
All sample results in waters for pentachlorophenol
F for positions and R for non detects.
The soil MS/MSD contained 4 crops.
with 1 RPD's greater than the advisory limit.
No Action,

EMW
8-19-91

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

None.

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

*System performance and data package
acceptable.*

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.

Sample 20-005-D201 instead of 20-005-D201RE.

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO. 91032804

LABORATORY R.F. WESTON-LIONVILLE

SDG NO. _____

DATA USER R.F. WESTON

SOW 2/80 CDP - REGION II

REVIEW COMPLETION DATE 8-19-91

NO. OF SAMPLES 2 WATER 9 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	_____	<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>M</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: _____

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

SOP NO: HW-6
Date: February 1989

Type of Review: SVQA REGION II VALIDATION

Into: 8-19-91

Case #: 91032804

Project: COLTSNECK NAVAL WEAPONS STATION

Lab Name: R.F. WESTON - Lionville

Reviewer's Initials: JMN

Number of Samples: 11

Analytes Rejected Due to Exceeding Review Criteria:

	Surrogates	Holding Time	Calibration	Confirmation	ID	Other	Total # Samples	Total # Rejected/ Total # in all Samples
Acids (15)	0	0	0	0	0	0	11	2/165
B/N (50)	0	0	0	27	0	2	11	27/550
VOA (35)				0		0	11	
PEST (20)								
ICB (7)								
TCDD (1)								

Analytes Estimated Due to Exceeding Review Criteria for:

Acids (15)	0	0	0	0	0	30	11	30/165
B/N (50)	0	0	1	7	0	100	11	108/550
VOA (35)								
PEST (20)								
ICB (7)								
TCDD (1)								

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 9103L804
 LAB: R.F. WESTON - LIONVILLE
 SITE: COLTSNECK NAVAL WEAPONS STATION

1.0 Data Completeness and Deliverables

YES NO N/A

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

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

1.2 Was SMD CCS checklist included with package?

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

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

3.0 Data Validation Checklist

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

Does this package contain:

VOA data?

BVA data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

YES NO N/A

PART B: BVA 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).

1.0 Holding Times

2.1 Have any BVA holding times, determined from date of collection to date of extraction, been exceeded?

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

Table of Holding Time Violations

Sample	Sample Matrix	Date Sampled	(See Traffic Report)		Date Analyzed
			Date Lab Received	Date Extracted	
20-005-D201RE	WATER	3-9-91	3-5-91	4-1-91	4-5-91
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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.

00060

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").

10 Surrogate Recovery (Form II)

3.1 Are the EPA 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 EPA 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 EPA surrogate recoveries are > 10% but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. base-neutral OR acid compounds):

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

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>0</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>4</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?

YES NO N/A

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

YES NO N/A

5.3 Has a ^{Method} BNA ~~instrument~~ blank been analyzed for each GS/MS system used.

YES NO N/A

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 (RIGs), quant reports or data system printouts and spectra.

Is the chromatographic performance (baseline stability) for each instrument acceptable for VOCs?

YES NO N/A

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

6.0 Contamination

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

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

YES NO N/A

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

YES NO N/A

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

not identified

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

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

	YES	NO	N/A
Common Phthalate Esters	Sample conc > CRQL but < 10x blank	Sample conc < CRQL & is < 10x blank value	Sample conc > CRQL value & >10x blank value
	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed
Other Contaminants	Sample conc > CRQL but < 5x blank	Sample conc < CRQL & is < 5x blank value	Sample conc > CRQL value & > 5 blank value
	Flag sample result with a 'U'; cross out 'B' flag	Reject sample result and report CRQL; cross out 'B' flag	No qualification is needed

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

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

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

not identified.

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			
		<i>EMM</i>				
		<i>8-19-91</i>				

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.

8.0 Target Compound List (TCL) Analytes

8.1 Are the Organic Analysis Data Sheets (Form I BVA) 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

00065

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?

YES NO N/A

a. Samples and/or fractions as appropriate

b. Matrix spikes and matrix spike duplicates (Mass spectra not required)

c. Blanks

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

8.3 Are the response factors shown in the Quant Report?

8.4 Is chromatographic performance acceptable with respect to:

Quant ion

Baseline stability

Resolution

Peak shape

Full-scale graph (attenuation)

Other: _____

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

8.5 Are the lab-generated standard mass spectra of the identified EPA compounds present for each sample?

ACTION: If any mass spectra are missing, take action specified in 3.2 above. If Lab does not generate their own standard spectra, make note in "Contract Problems/Non-compliance".

8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?

8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?

8.8 Do sample and standard relative ion intensities agree within 20%?

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected, 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.			
<u>10.0 Compound Quantitation and Reported Detection Limits</u>			
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 CRQIs adjusted to reflect sample dilutions and, for soils, sample moisture?	<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 BNA fraction?

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

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

ACTION: Circle all outliers in red.

ACTION: When RSD >30%, non-detects may be qualified using professional judgement. Flag all positive results "J". When RSD >90%, flag all non-detects as unusable ("R"). (Region II policy.)

12.3 Do any compounds have a RRF < 0.05?

ACTION: Circle all outliers in red.

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

00068

12.4 Are there any transcription / calculation errors in the reporting of average response factors (RRF) or %RSD? (Check at least two values but if errors are found, check more.)

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

ACTION: Circle errors in red.

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

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction?

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

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

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

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

~~_____~~
~~_____~~
~~_____~~

EMM
8-19-91

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

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

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

ACTION: Circle all outliers in red.

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

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

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

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

% DIFFERENCE			YES	NO	N/A
25-50	50-90	>90			
'J' positive results, no action for non detects	'J' positive results, 'U' non detects	'J' positive results, "R" non detects		<input checked="" type="checkbox"/>	

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
20-005-D201Rc	Chrysene - diz	15353	15698	62792
↓	Perylene - diz	11785	14491	57964
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

(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.

YES NO N/A

10 Field Duplicates

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

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

Not identified

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



HEARTLAND ENVIRONMENTAL SERVICES, INC.

P.O. BOX 163 ST. PETERS MO 63376

(314) 278-8232

August 20, 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 March 4, 1991. There were two (2) water samples and nine (9) soil/sediment samples with one soil MS/MSD which were analyzed by the Roy F. Weston Lionville Laboratory included in this analytical batch.

Samples Reviewed Water Samples

<u>Field ID</u>	<u>Lab ID</u>
20-005-D201	9103L804-034
22-006-D201	9103L804-017

Soil Samples

<u>Field ID</u>	<u>Lab ID</u>	<u>Field ID</u>	<u>Lab ID</u>
20-003-D001	9103L804-030	22-007-S001MS	9103L804-018MS
20-005-D001	9103L804-032	22-007-S001MSD	9103L804-018MSD
20-005-D101	9103L804-037	22-008-S001	9103L804-020
22-003-D001	9103L804-013	22-008-S101	9103L804-021
22-006-D001	9103L804-016	22-009-S001	9103L804-023
22-007-S001	9103L804-018		

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

00001



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/MSP results. All comments made within this report should be considered when examining the analytical results (Form 1). Please refer the specific findings found in each category to the Summary of Data Qualification table.

In general, the laboratory performed poorly with some deviations from the prescribed analytical protocol. The chromatography was generally of poor quality, only partially due to the nature of the soil/sediment samples. All analyses were performed on packed column utilizing peak heights for compound quantitation.

Holding Times

All samples were extracted and analyzed within holding times.

GC Instrument Performance

The peaks for Endosulfan I, Dieldrin, and 4,4'-DDT resulting from standards analyses were outside the laboratory provided retention time windows (RTWs) for the analytical sequence containing the samples. The sample chromatograms were carefully reviewed with slightly expanded RTWs.

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

Initial Calibration

The %RSDs for initial calibration of the sample quantitation sequence were within QC limits. The %RSDs for initial calibration of the sample confirmation sequence and other associated sequences were not within QC limits. These calibrations do not impact the reported sample results.

Continuing Calibrations

Specific Finding

1. The continuing calibrations for Heptachlor and 4,4'-DDT exceeded the 15% Difference QC limit for quantitation. All positive results for these compounds are qualified as estimated. "J".



Blanks

No target compounds were confirmed in either the water method blanks or the reported soil method blank. However, the laboratory reported results for soil blank 91LE0334-MB2 with no mention of 91LE0334-MB1 which was also analyzed in the reported sequences. The chromatograms included for the method blank were from analyses performed on Instrument 03 & 04. These chromatograms were changed by hand from MB1 to MB2. The Form 8s included with the package indicate that MB1 was analyzed on instruments 03 & 04 and that MB2 was analyzed later on instruments 13 & 14. All samples were analyzed on Instruments 13 & 14.

The laboratory "Extraction Record" included at the end of the data package (p.384) failed to report the extraction of the two blanks with the soil samples. It is this reviewer's opinion that if two blanks are extracted and analyzed, both sets of results must be reported. The additional information would only add 10 or 12 pages to the data package and could help to clarify the soil method blank associations.

Specific Finding

- 2 All positive results for the soil samples are highly qualified due to the potential "blank selection" process used by the laboratory, the discrepancies in blank identification, and the fact that the reported blank was apparently not analyzed with the samples.

Surrogate Recoveries

All PBC surrogate recoveries were within the required QC advisory limits. It should be noted that the surrogate recoveries for sample 22-007-S001 and its MS & MSD were quite variable, 40%, 119%, and 66%, respectively. These differences were not reflected in the reported spike recoveries for the MS/MSD as described following.

Matrix Spike/Matrix Spike Duplicate

The recoveries reported for the MS/MSD included in this analytical batch do not correspond well to the relative differences observed in the surrogate recoveries. The reported MSD spike compound concentrations for Lindane, Aldrin, Dieldrin and 4,4' DDT were arbitrarily determined from the confirmation column. No other quantitations were performed from this column for any samples in the data package. For example, if the Lindane concentration in the MSD is calculated from the primary column, the recovery for this compound is 45%, below the QC limits, as compared to the reported 98% recovery. Improper quantitations resulted in acceptable MSP recoveries and generally improved duplicate precision. The laboratory is strongly urged not to employ reporting techniques which only serve to favorably bias QC results.



Analyte Identification/Quantitation

Specific Finding

3. Significant interferences were observed in samples 22-003-D001, 22-006-D001, 22-007-S001, 22-008 S101, 22-009-S001, 20-003-D001, 20-005-D001 and 20-005-D101. These interferences were of a similar pattern and resembled that of AR1248, although not a good enough match for positive identification. Because of this consistent early eluting interference, the reported detection limits for Alpha-BHC, Beta-BHC, Delta-BHC, gamma-BHC, Heptachlor, Aldrin, Heptachlor epoxide, AR1016, AR1221, AR1232, AR1242 and AR1248 are qualified as estimated in the above listed samples.
4. Postive results reported for 4,4'-DDT are qualified as "NJ" in samples 22-003-D001, 22-007-S001 and 22-009-S001 due to the significant differences in quantitative results between the primary and confirmation column. These differences are approximately an order of magnitude and indicate the presence of an interfering contaminant which falls within or near the DDT RTW on the confirmation column reported.
5. Samples 20-005-D001 and 20-005-D101 each had percent moistures greater than 50%, 53% and 57%, respectively. All positive and non-detect results for these samples are qualified as estimated, "J".

Overall Assessment

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



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 13 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	Heptachlor & 4,4'-DDT	+	J	1
Soils & Sediments	All	+	J	2
22-003-D001, 22-006-D001, 22-007-S001, 22-008-S101, 22-009-S001, 20-003-D001, 20-005-D001, and 20-005-D101	Alpha-BHC, Beta-BHC, Delta-BHC, gamma-BHC, Heptachlor, Aldrin, Heptachlor epoxide, AR1016, AR1221, AR1232, AR1212 and AR1248	U	UJ	3
22-003-D001, 22-007-S001, and 22-009-S001	4,4'-DDT	-	NJ	1
20-005-D001 & 20-005-D101	All	+/-	J/UJ	5

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

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000057

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

20-003-D001

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-030

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 04199113.21

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 34 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS:		
319-84-6	Alpha-BHC	12	U✓	3
319-85-7	Beta-BHC	12	U✓	3
319-86-8	Delta-BHC	12	U✓	3
58-89-9	gamma-BHC (Lindane)	12	U✓	3
76-44-8	Heptachlor	12	U✓	3
309-00-2	Aldrin	12	U✓	3
1024-57-3	Heptachlor epoxide	12	U✓	3
959-98-8	Endosulfan I	12	U	
60-57-1	Dieldrin	24	U	
72-55-9	4,4'-DDE	24	U	
72-20-8	Endrin	24	U	
33213-65-9	Endosulfan II	24	U	
72-54-8	4,4'-DDD	24	U	
1031-07-8	Endosulfan sulfate	24	U	
50-29-3	4,4'-DDT	24	U	
72-43-5	Methoxychlor	120	U	
53494-70-5	Endrin ketone	24	U	
5103-71-9	alpha-Chlordane	120	U	
5103-74-2	gamma-Chlordane	120	U	
8001-35-2	Toxaphene	240	U	
12674-11-2	Aroclor-1016	120	U✓	3
11104-28-2	Aroclor-1221	120	U✓	3
11141-16-5	Aroclor-1232	120	U✓	3
53469-21-9	Aroclor-1242	120	U✓	3
12672-29-6	Aroclor-1248	120	U✓	3
11097-69-1	Aroclor-1254	240	U	
11096-82-5	Aroclor-1260	240	U	

llc
3/21/91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000062

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

20-005-D001

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-032

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 04199113.22

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 53 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 6.6 Dilution Factor: 2.00

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

CAS NO.	COMPOUND			
319-84-6	Alpha-BHC	34	U	✓
319-85-7	Beta-BHC	34	U	
319-86-8	Delta-BHC	34	U	
58-89-9	gamma-BHC (Lindane)	34	U	
76-44-8	Heptachlor	34	U	
309-00-2	Aldrin	34	U	
1024-57-3	Heptachlor epoxide	34	U	
959-98-8	Endosulfan I	34	U	✓
60-57-1	Dieldrin	67	U	
72-55-9	4,4'-DDE	67	U	
72-20-8	Endrin	67	U	
33213-65-9	Endosulfan II	67	U	
72-54-8	4,4'-DDD	67	U	
1031-07-8	Endosulfan sulfate	67	U	
50-29-3	4,4'-DDT	67	U	
72-43-5	Methoxychlor	340	U	
53494-70-5	Endrin ketone	67	U	
5103-71-9	alpha-Chlordane	340	U	
5103-74-2	gamma-Chlordane	340	U	
8001-35-2	Toxaphene	670	U	
12674-11-2	Aroclor-1016	340	U	✓
11104-28-2	Aroclor-1221	340	U	
11141-16-5	Aroclor-1232	340	U	
53469-21-9	Aroclor-1242	340	U	
12672-29-6	Aroclor-1248	340	U	
11097-69-1	Aroclor-1254	670	U	✓
11096-82-5	Aroclor-1260	670	U	✓

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1D
 PESTICIDE ORGANICS ANALYSIS SHEET 0000073

CLIENT SAMPLE NO.

20-005-D101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-037

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 04199113.23

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 57 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 2.00

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

CAS NO.	COMPOUND		
319-84-6	Alpha-BHC	37	U J
319-85-7	Beta-BHC	37	U
319-86-8	Delta-BHC	37	U
58-89-9	gamma-BHC (Lindane)	37	U
76-44-8	Heptachlor	37	U
309-00-2	Aldrin	37	U
1024-57-3	Heptachlor epoxide	37	U
959-98-8	Endosulfan I	37	U
60-57-1	Dieldrin	74	U
72-55-9	4,4'-DDE	74	U
72-20-8	Endrin	74	U
33213-65-9	Endosulfan II	74	U
72-54-8	4,4'-DDD	74	U
1031-07-8	Endosulfan sulfate	74	U
50-29-3	4,4'-DDT	74	U
72-43-5	Methoxychlor	370	U
53494-70-5	Endrin ketone	74	U
5103-71-9	alpha-Chlordane	370	U
5103-74-2	gamma-Chlordane	370	U
8001-35-2	Toxaphene	740	U
12674-11-2	Aroclor-1016	370	U
11104-28-2	Aroclor-1221	370	U
11141-16-5	Aroclor-1232	370	U
53469-21-9	Aroclor-1242	370	U
12672-29-6	Aroclor-1248	370	U
11097-69-1	Aroclor-1254	740	U
11096-82-5	Aroclor-1260	740	U

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1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000068

20-005-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-034

Sample wt/vol: 990 (g/mL) ML Lab File ID: 04179113.14

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. dec. Date Extracted: 03/08/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 04/17/91

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	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

Handwritten signature and date: 5/21/91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000022

22-003-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-013

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 04199113.13

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 26 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 8.3 Dilution Factor: 2.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>		
319-84-6	Alpha-BHC	22	U	J
319-85-7	Beta-BHC	22	U	
319-86-8	Delta-BHC	22	U	
58-89-9	gamma-BHC (Lindane)	22	U	
76-44-8	Heptachlor	22	U	
309-00-2	Aldrin	22	U	
1024-57-3	Heptachlor epoxide	22	U	
959-98-8	Endosulfan I	22	U	
60-57-1	Dieldrin	43	U	
72-55-9	4,4'-DDE	43	U	
72-20-8	Endrin	43	U	
33213-65-9	Endosulfan II	43	U	
72-54-8	4,4'-DDD	43	U	
1031-07-8	Endosulfan sulfate	43	U	
50-29-3	4,4'-DDT	13	MJ	
72-43-5	Methoxychlor	220	U	
53494-70-5	Endrin ketone	43	U	
5103-71-9	alpha-Chlordane	220	U	
5103-74-2	gamma-Chlordane	220	U	
8001-35-2	Toxaphene	430	U	
12674-11-2	Aroclor-1016	220	U	J
11104-28-2	Aroclor-1221	220	U	
11141-16-5	Aroclor-1232	220	U	
53469-21-9	Aroclor-1242	220	U	
12672-29-6	Aroclor-1248	220	U	
11097-69-1	Aroclor-1254	430	U	
11096-82-5	Aroclor-1260	430	U	

Handwritten notes and arrows:
 - A vertical arrow on the right side of the table, pointing downwards, with the number '3' written next to it.
 - A large handwritten 'M' or 'MJ' is written to the right of the table.
 - The numbers '1, 2, 4' are written near the bottom right of the table.
 - Another vertical arrow is present near the bottom right, also with the number '3' next to it.

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000027

22-006-D001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SEDIMENT Lab Sample ID: 9103L804-016

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 04199113.14

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 31 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 7.7 Dilution Factor: 5.00

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

319-84-6	Alpha-BHC	56	U	J	3
319-85-7	Beta-BHC	56	U		
319-86-8	Delta-BHC	56	U		
58-89-9	gamma-BHC (Lindane)	56	U		
76-44-8	Heptachlor	56	U		
309-00-2	Aldrin	56	U		
1024-57-3	Heptachlor epoxide	56	U		
959-98-8	Endosulfan I	56	U		
60-57-1	Dieldrin	110	U		
72-55-9	4,4'-DDE	110	U		
72-20-8	Endrin	110	U		
33213-65-9	Endosulfan II	110	U		
72-54-8	4,4'-DDD	110	U		
1031-07-8	Endosulfan sulfate	110	U		
50-29-3	4,4'-DDT	110	U		
72-43-5	Methoxychlor	560	U		
53494-70-5	Endrin ketone	110	U		
5103-71-9	alpha-Chlordane	560	U		
5103-74-2	gamma-Chlordane	560	U		
8001-35-2	Toxaphene	1100	U		
12674-11-2	Aroclor-1016	560	U	J	3
11104-28-2	Aroclor-1221	560	U		
11141-16-5	Aroclor-1232	560	U		
53469-21-9	Aroclor-1242	560	U		
12672-29-6	Aroclor-1248	560	U		
11097-69-1	Aroclor-1254	1100	U		
11096-82-5	Aroclor-1260	1100	U		

Handwritten notes:
A large handwritten 'N' or 'M' is written vertically on the right side of the table.
Below it, there are some scribbles that appear to be initials or a signature.

1D
 PESTICIDE ORGANICS ANALYSIS SHEET 0000032

CLIENT SAMPLE NO.

22-006-D201

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: WATER Lab Sample ID: 9103L804-017

Sample wt/vol: 990 (g/mL) ML Lab File ID: 04179113.13

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. dec. Date Extracted: 03/08/91

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 04/17/91

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	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

ML
5/31/91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000042

22-008-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-020

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 04199113.16

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 20 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	<u>ug/Kg</u>
319-84-6	Alpha-BHC	9.8	U
319-85-7	Beta-BHC	9.8	U
319-86-8	Delta-BHC	9.8	U
58-89-9	gamma-BHC (Lindane)	9.8	U
76-44-8	Heptachlor	9.8	U
309-00-2	Aldrin	9.8	U
1024-57-3	Heptachlor epoxide	9.8	U
959-98-8	Endosulfan I	9.8	U
60-57-1	Dieldrin	20	U
72-55-9	4,4'-DDE	20	U
72-20-8	Endrin	20	U
33213-65-9	Endosulfan II	20	U
72-54-8	4,4'-DDD	20	U
1031-07-8	Endosulfan sulfate	20	U
50-29-3	4,4'-DDT	20	U
72-43-5	Methoxychlor	98	U
53494-70-5	Endrin ketone	20	U
5103-71-9	alpha-Chlordane	98	U
5103-74-2	gamma-Chlordane	98	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	98	U
11104-28-2	Aroclor-1221	98	U
11141-16-5	Aroclor-1232	98	U
53469-21-9	Aroclor-1242	98	U
12672-29-6	Aroclor-1248	98	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

PC
5/21/91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000047

22-008-S101

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-021

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 04199113.17

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 17 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: . (ug/L or ug/Kg) <u>ug/Kg</u>		
319-84-6	Alpha-BHC	9.5	UJ	3
319-85-7	Beta-BHC	9.5	U	
319-86-8	Delta-BHC	9.5	U	
58-89-9	gamma-BHC (Lindane)	9.5	UJ	1, 2, 3
76-44-8	Heptachlor	2.4	U	
309-00-2	Aldrin	9.5	U	3
1024-57-3	Heptachlor epoxide	9.5	U	
959-98-8	Endosulfan I	9.5	U	
60-57-1	Dieldrin	19	U	
72-55-9	4,4'-DDE	19	U	
72-20-8	Endrin	19	U	
33213-65-9	Endosulfan II	19	U	
72-54-8	4,4'-DDD	19	U	
1031-07-8	Endosulfan sulfate	19	U	
50-29-3	4,4'-DDT	19	U	
72-43-5	Methoxychlor	95	U	
53494-70-5	Endrin ketone	19	U	
5103-71-9	alpha-Chlordane	95	U	
5103-74-2	gamma-Chlordane	95	U	
8001-35-2	Toxaphene	190	U	
12674-11-2	Aroclor-1016	95	UJ	3
11104-28-2	Aroclor-1221	95	U	
11141-16-5	Aroclor-1232	95	U	
53469-21-9	Aroclor-1242	95	U	
12672-29-6	Aroclor-1248	95	U	
11097-69-1	Aroclor-1254	190	U	
11096-82-5	Aroclor-1260	190	U	

Handwritten notes: 1, 2, 3; 3; 5/3/91

1D
PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

0000052

22-009-S001

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

Client: NAVAL WEAPONS/COLTSNECK

Matrix: SOIL Lab Sample ID: 9103L804-023

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 04199113.20

Level: (low/med) LOW Date Received: 03/05/91

% Moisture: not dec. 23 dec. Date Extracted: 03/12/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 04/20/91

GPC Cleanup: (Y/N) Y pH: 5.7 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>ug/Kg</u>		
319-84-6	Alpha-BHC	10	U	✓ 3
319-85-7	Beta-BHC	10	U	↓
319-86-8	Delta-BHC	10	U	↓
58-89-9	gamma-BHC (Lindane)	10	U	↓
76-44-8	Heptachlor	10	U	↓
309-00-2	Aldrin	10	U	↓
1024-57-3	Heptachlor epoxide	10	U	↓
959-98-8	Endosulfan I	10	U	↓
60-57-1	Dieldrin	21	U	↓
72-55-9	4,4'-DDE	21	U	↓
72-20-8	Endrin	21	U	↓
33213-65-9	Endosulfan II	21	U	↓
72-54-8	4,4'-DDD	21	U	↓
1031-07-8	Endosulfan sulfate	21	U	↓
50-29-3	4,4'-DDT	(5.2)	U	↓
72-43-5	Methoxychlor	100	U	↓
53494-70-5	Endrin ketone	21	U	↓
5103-71-9	alpha-Chlordane	100	U	↓
5103-74-2	gamma-Chlordane	100	U	↓
8001-35-2	Toxaphene	210	U	↓
12674-11-2	Aroclor-1016	100	U	✓ 3
11104-28-2	Aroclor-1221	100	U	↓
11141-16-5	Aroclor-1232	100	U	↓
53469-21-9	Aroclor-1242	100	U	↓
12672-29-6	Aroclor-1248	100	U	↓
11097-69-1	Aroclor-1254	210	U	↓
11096-82-5	Aroclor-1260	210	U	↓

M.
5/19/91
1, 2, 4

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: RFW Lot # 91032804
 LAB: Roy F. Weston - ~~Gulf Coast~~ ^{Lionville Lab} eos 8/4/91
 SITE: NWS-Earle Colts Neck, NJ

1.0 Data Completeness and Deliverables

YES NO N/A

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

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

1.2 Was SMD CCS checklist included with package?

2.0 Cover Letter/Case Narrative

2.1 Is the Narrative or Cover Letter present?

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

3.0 Data Validation Checklist

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

Does this package contain:

VOA data?

BVA data?

Pesticide/PCB data?

ACTION: Complete corresponding parts of checklist.

PART C: PESTICIDE/PCB ANALYSES

YES NO N/A

1.0 Traffic Reports and Laboratory Narrative

1.1 Are the Traffic Report Forms present for all samples?

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

1.2 Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data?

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

Sample 20-005-0001
53% Moisture *Jall*

Sample 20-005-D101
57% Moisture *Jall*

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

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.

The two water samples were analyzed on day 40 after extraction

1.0 Surrogate Recovery (Form II)

No qualification

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

extremely variable DBC recoveries for sample

b. Med Water

22-007-5001, MS+MSD (40) (119) (66)

c. Low Soil

d. Med Soil

00019

YES NO N/A

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

<u>Water</u>	<u>Soils</u>
/ out of 6	/ out of 6

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

5.0 Blanks (Form IV)

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

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

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

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

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

barely, confirmation has significant electronegative peaks - probably not affecting identification

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.

Unclear association of soil samples with blanks

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.)

No field blank identified with this set of samples.

YES NO N/A

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

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

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

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

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

.0 Calibration and GC Performance

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

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

ACTION: If no, take action specified in 3.2 above

7.2 Is Form VIII Pest-1 present and complete for each GC column (primary and confirmation) and each 72 hour sequence of analyses?

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

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

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

Possible switch of MB-1 & MB-2 for soils - hand changed chromatograms do not correspond to Form 8Es

7.4 Has the total breakdown on quantitation or confirmation column exceeded 20% for DDT?

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

- for Endrin?

or if Endrin aldehyde and 4,4'-DDD co-elute and there is a peak at their retention time, has the combined DDT and Endrin breakdown exceeded 20%?

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

00022

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

7.6 Is the % difference between the EVAL A and each analysis (quantitation and confirmation) DBC retention time within QC limits (2% for <u>packed column</u> , 0.3% for capillary [I.D. < 0.32 mm], 1% for megabore [0.32 < I.D. < 2 mm]) ?	<input checked="" type="checkbox"/>	—	—
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ACTION: DBC retention time cannot be evaluated if DBC is not detected. If it is present and has a retention time out of QC limits, then use professional judgement to determine the reliability of the analysis and flag results "R", if appropriate.

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

8.0 Pesticide/PCB Standards Summary

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

8.2 Are there any transcription/calculation errors between raw data and Form IX? <i>differences @ 4th sig. fig.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	—
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ACTION: If large errors exist, call lab for explanation / resubmittal, make any necessary corrections and note errors under "Conclusions".

relatively minor differences in CFs - consistent do not appear to affect %Ds

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

8.4 Do all standard retention times fall within the windows established for the first IND A and IND B analyses?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	00023
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YES NO N/A

ACTION: Beginning with the samples following the last in control standard, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and, DBC is visible non-detects are valid. If peaks are present and cannot be identified through "pattern recognition" or a consistent shift in standard retention times, flag all affected compound results "R".

Endosulfan I }
Dieldrin } all samples
DDT }
slightly delayed (i.e. > upper RT limit)

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.

Heptachlor & DDT
positive results qualified

9.0 Pesticide/PCB Identification

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

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

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

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

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

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

not required

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).

associated stds.
also delayed
(see above)

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

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

YES NO N/A

10.0 Compound Quantitation and Reported Detection Limits

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

— —

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

Significant interferences

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.

1.0 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?

— 00025

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

stds. Samples w/ early eluting interferences

12.0 Field Duplicates

YES NO N/A

12.1 Were any field duplicates submitted for PEST/PCB analysis?

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

*none
clearly
identified*

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

TOTAL REVIEW

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organics Analysis
RFW# 22-003- Roy F. Weston
Case No. 9103L804 SDG No. D001 LABORATORY Lionville SITE NWS/Earle
Colts Neck, NJ

DATA ASSESSMENT:

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

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

Reviewer's
Signature: [Signature] Date: 8/16/1991

Verified By: [Signature] Date: 8/20/1991

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.

*Hold times met, barely
no qualification required*

ATTACHMENT 1
SOP NO. HW-6

DATA ASSESSMENT:

2. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip field, rinse and water blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field blanks measure cross-contamination of samples during field operations. Water blanks measure potential contamination of the distilled water used 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 positive hits were identified in the reported Method Blank, Lab ID 91LE0334-MB2. However, the laboratory failed to report 91LE0334-MB1, which was also analyzed in a 10% Conf. Sequence. All positive results reported are qualified due to the potential for "blank selection."

B) Field or rinse blank contamination

No identified FB

C) Water blank contamination

NA

D) Trip blank contamination

NA

00029

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.

*Confirmation column apparently non-linear.
(SP2100) no impact*

Primary column (2250/2401), %Ds > 15% for DDT and Heptachlor - qualify all positive results as estimated.

Endo I, Dieldrin & DDT stds. were not within reported Retention Time Windows on 1^o column

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 - no qualifications required - extremely variable recoveries were noted for sample 22-007-5001 + its MS/MSD (40% Rec.) (119%) (66%)

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.

For the DDT results reported, two of the samples had DDT outside RTWs in the 1° column - However, stds. were similarly biased - other qualifications required due to discrepancies in 1° Conf. quantitation & significant interferences

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.

Some of the soil ^{CPS 8/19/91 (MSD only)} ~~MS~~MSD quantitations were arbitrarily performed from the confirmation column, the recoveries reported from the Conf. column for the MSD do not reflect the recovery bias indicated by the surrogate

MS/MSD
DBC (119)/(66) - 1°
(180)/(95) - Conf.

MSD results for gamma-BHC, Aldrin, Dieldrin and DDT should be 18, 16, 50 & 60 ng/ul, respectively
eg. Lindane recovery for MSD = 45% * below QC
if 1° column quant. reported limit

DATA ASSESSMENT:

10. OTHER QC DATA OUT OF SPECIFICATION:

Significant interferences were observed in samples 22-03-D001, 22-006-D001, 22-007-S001, 22-008-S101, 22-009-S001, 20-003-D001, 20-005-D001 and 20-005-D101 — peak pattern similar to early eluting areolator (1248) but not exact match —

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

poor

12. CONTRACT PROBLEMS 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.

Only one included for each sample

DATA ASSESSMENT:

11. SYSTEM PERFORMANCE AND OVERALL ASSESSMENT:

Reported detection limits for the
Early eluting compounds are qualified due
to interferences - laboratory contamination
cannot be ruled out as the cause because
of the potential for blank "selection"
by the lab. Positive results for DDT
qualified as "N" due to confirmation column
interference near RTW, order of magnitude
differences for 1^o vs. Conf. quantitation,
Some reported MSD results for soil arbitrarily
quantitated from confirmation column.

Overall performance and assessment

— poor

DPO. ACTION FYI

Region _____

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

Rfw#

CASE NO. 91032804

LABORATORY Roy F. Weston - Lionville

SDG NO. 20-03-0001

DATA USER _____

SOW 2/88

REVIEW COMPLETION DATE 8/20/91

NO. OF SAMPLES 2 WATER 9 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>X</u>	_____
3. INITIAL CALIBRATIONS	_____	_____	<u>0</u>	_____
4. CONTINUING CALIBRATIONS	_____	_____	<u>X</u>	_____
5. FIELD BLANKS (*F* = not applicable)	_____	_____	<u>F</u>	_____
6. LABORATORY BLANKS	_____	_____	<u>M</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	_____	_____	_____	_____
11. COMPOUND IDENTIFICATION	_____	_____	<u>M</u>	_____
12. COMPOUND QUANTITATION	_____	_____	<u>0</u>	_____
13. SYSTEM PERFORMANCE	_____	_____	<u>M</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: MSD quantitation — soil blank confusion



HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

REGION II ORDNANCE DATA VALIDATION

NAVAL WEAPONS STATION - COLTSNECK

ROY F. WESTON CASE 9103L804

<u>Coltsneck ID</u>	<u>R.F. Weston ID</u>	<u>Coltsneck ID</u>	<u>R.F. Weston ID</u>
---------------------	-----------------------	---------------------	-----------------------

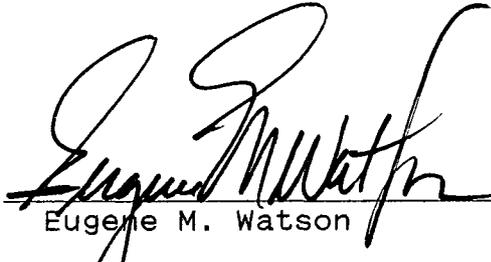
Soil Samples (all)

02-001-D001	9103L804-001	02-002-D001	9103L804-002
02-003-D001	9103L804-003	02-004-S001	9103L804-004
02-005-S001	9103L804-005	02-006-S001	9103L804-006
02-006-S101	9103L804-007	02-007-S001	9103L804-008
02-008-S001	9103L804-009	02-008-S001	9103L804-009MS
02-008-S001	9103L804-009MSD		

Water Samples (all)

02-004-S201	9103L804-010
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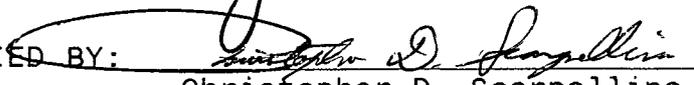
PREPARED BY:


Eugene M. Watson

DATE:

8-20-91

VERIFIED BY:


Christopher D. Scarpellino

DATE:

8/20/91

00001



DATA ASSESSMENT AND 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 a Target Compound Summary List of qualified data 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 (Form I's). 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



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

The standard analyzed by the laboratory did agree within 25% of the initial calibration. However, the laboratory did not analyze the highest concentration standard, instead the laboratory analyzed the 10X standard. Since all of the sample results were non detects, Heartland ESI will not qualify the data based on the analysis of the wrong standard.

In addition, the calibration for 02-004-S201 was not performed correctly. The laboratory used a high standard of 20X and only analyzed six (6) of the compounds of interest. The data package included a supplemental page which summarized predicted retention time windows. This is not acceptable under any protocol and will not be tolerated in this instance. Heartland ESI has no choice but to reject the results for the compounds that were not calibrated.

Specific Findings:

1. For sample 02-004-S201, the initial calibration did not contain HMX, RDX, and TETRYL. All results for these three (3) compounds are rejected (R).

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 soil MS/MSD did exhibit acceptable recoveries for all the target explosive compounds.

Method specific QA/QC

The laboratory did 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. No qualifications are needed.



Compound identification/quantitation

No positive results were reported. The laboratory did not report the soil sample results on a dry weight basis as stated in the case narrative. All results must be considered as is or "wet weight".

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

Heartland ESI 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>
02-004-S201	HMX, RDX, TETRYL	+/-	R	1

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by Heartland ESI
+ in the DL column denotes a positive result
- in the DL column denotes a negative result

	Cust ID: 02-001-D001	02-002-D001	02-003-D001	02-004-S001	02-005-S001	02-006-S001
Sample Information	RFW#: 001	002	003	004	005	006
	Matrix: SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.: 1.00	1.00	1.00	1.00	1.00	1.00
	Units: UG/G	UG/G	UG/G	UG/G	UG/G	UG/G
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
HMX	1.27 U	1.27 U	1.27 U	1.27 U	1.27 U	1.27 U
RDX	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
1,3,5-TNB	2.09 U	2.09 U	2.09 U	2.09 U	2.09 U	2.09 U
1,3-DNB	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U
Tetryl	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
2,4,6-TNT	1.92 U	1.92 U	1.92 U	1.92 U	1.92 U	1.92 U
2,6-DNT	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
2,4-DNT	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U

	Cust ID: 02-006-S101	02-007-S001	02-008-S001	02-008-S001	02-008-S001	BLK
Sample Information	RFW#: 007	008	009	009 MS	009 MSD	91LLC018-MB1
	Matrix: SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.: 1.00	1.00	1.00	1.00	1.00	1.00
	Units: UG/G	UG/G	UG/G	UG/G	UG/G	UG/G
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
HMX	1.27 U	1.27 U	1.27 U	116 %	116 %	1.27 U
RDX	0.98 U	0.98 U	0.98 U	103 %	105 %	0.98 U
1,3,5-TNB	2.09 U	2.09 U	2.09 U	113 %	115 %	2.09 U
1,3-DNB	0.59 U	0.59 U	0.59 U	115 %	116 %	0.59 U
Tetryl	5.00 U	5.00 U	5.00 U	90 %	93 %	5.00 U
2,4,6-TNT	1.92 U	1.92 U	1.92 U	111 %	113 %	1.92 U
2,6-DNT	0.40 U	0.40 U	0.40 U	111 %	112 %	0.40 U
2,4-DNT	0.42 U	0.42 U	0.42 U	109 %	111 %	0.42 U

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

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HEARTLAND ENVIRONMENTAL SERVICES, INC.

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

REGION II PICRIC ACID DATA VALIDATION

NAVAL WEAPONS STATION - COLTSNECK

ROY F. WESTON CASE 9103L804

<u>Coltsneck ID</u>	<u>R.F. Weston ID</u>	<u>Coltsneck ID</u>	<u>R.F. Weston ID</u>
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Soil Samples (all)

02-001-D001	9103L804-001	02-002-D001	9103L804-002
02-003-D001	9103L804-003	02-004-S001	9103L804-004
02-005-S001	9103L804-005	02-006-S001	9103L804-006
02-006-S101	9103L804-007	02-007-S001	9103L804-008
02-008-S001	9103L804-009	02-008-S001	9103L804-009MS
02-008-S001	9103L804-009MSD		

Water Samples (all)

02-004-S201	9103L804-010
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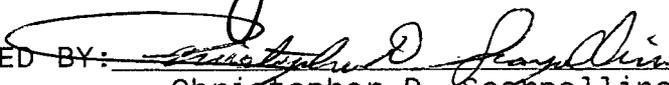
PREPARED BY:


Eugene M. Watson

DATE:

8-20-91

VERIFIED BY:


Christopher D. Scarpellino

DATE:

8/20/91

00001



DATA ASSESSMENT AND 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 (Form I's). 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 but one (1) were extracted and analyzed within the holding time criteria set forth by the explosives methodologies. Sample 02-008-S001, MS, and MSD were reextracted 20 days after receipt. 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 AND NARRATIVE

PICRIC ACID ANALYSIS

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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 initial analysis of the MS/MSD yielded no recoveries and it was determined that the MS/MSD was not spiked. The reextracted MS/MSD did exhibit acceptable recoveries for picric acid. No qualifications are needed.

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

Heartland ESI 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 needed.

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by Heartland ESI
- + in the DL column denotes a positive result
- in the DL column denotes a negative result

Cust ID: 02-001-D001 02-002-D001 02-003-D001 02-004-S001 02-005-S001 02-006-S001

Sample	RFW#:	001	002	003	004	005	006
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g

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Picric Acid	1.48 U	1.48 U	1.44 U	1.23 U	1.27 U	1.19 U
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Cust ID: 02-006-S101 02-007-S001 02-008-S001 02-008-S001 02-008-S001 02-008-S001

Sample	RFW#:	007	008	009	009	009 MS	009 MS
Information	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/g	ug/g	ug/g	ug/g	ug/g	ug/g

=====fl=====fl=====fl=====fl=====fl=====fl=====fl

Picric Acid	1.19 U	1.19 U	1.11 U	1.11 U	NS	%	57 %
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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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Roy F. Weston, Inc. - Lionville Laboratory
Picric Acid by HPLC

Report Date: 04/08/91 15:09

Page: 2

RFW Batch Number: 9103L804

Client: NAVAL WEAPONS/COLTSNECK

Work Order: 1771-15-03-0000

Sample Information	Cust ID: 02-008-S001	02-008-S001	02-004-S201	BLK	BLK	BLK BS
RFW#:	009 MSD	009 MSD	010	91LLC022-MB1	91LLC028-MB1	91LLC028-MB1
Matrix:	SOIL	SOIL	WATER	SOIL	SOIL	SOIL
D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
Units:	ug/g	ug/g	ug/mL	ug/g	ug/g	ug/g
		REPREP				
Picric Acid	NS	56 %	1.64 U	1.03 U	1.03 U	56 %

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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