B00ZMe-TMA-0216
0045410
START
9613491.2703

RECORD OF DISPOSITION ROD-92-00031

DATE: 1/17/92 | LABORATORY: WESTON | 100-DR-1

SAMPLE IDENTIFICATION NUMBERS

*Project Wide

DISPOSITION OF SAMPLES

☐ CANCELLED (REASON)

☐ DAMAGED SAMPLE CONTAINER. ANALYSIS CANCELLED

☐ BROKEN GLASS CONTAMINATING SAMPLE. ANALYSIS CANCELLED

☒ OTHER SEE ATTACHED DSI.

OCT 1996
RECEIVED
EDMC

APPROVED David L. Edwards 1/17/92
PROJECT COORDINATOR DATE

M. Nakamura 1/23/92
TECHNICAL REPRESENTATIVE DATE

1] From: Daniel L Edwards at ~WHC169 1/17/92 9:11AM (1004 bytes: 18 ln)
To: Jonathan D Fancher at ~WHC178
cc: Karl N Pool at ~WHC167, C M Chance at ~WHC178, Daniel L Edwards
Subject: Alpha Spec.

---------- Message Contents ----------

Jon,

Weston would like to have you put the radionuclides for the alpha spec analysis on the chain of custody. The alpha spec can be used for several radionuclide determinations. If they are listed on the COC then Weston will know exactly what to perform for alpha spec.

The isotopes on the list that was provided to me for the 100-DR-1 project for alpha spec were:

Uranium-235,238
Plutonium-239/240
Americium-241

Thanks.

Dan Edwards

9613491.2705

DON'T SAY IT -- WRITE IT!

DATE: January 15, 1992

TO: Josie King, Weston Laboratories FROM: Dan Edwards, WHC OSM

cc: Karl Pool
Jeff Lerch
Jeanette Duncan

SUBJECT: 100-DR-1 ANALYSIS, ALPHA SPECTROSCOPY

Alpha Spectroscopy has been requested on samples from the 100-DR-1 Vadose project (OSM project number 91-083).

Alpha spectroscopy is to be performed on all 100-DR-1 Vadose samples that have this analysis indicated on the Sample Analysis Request Form. The isotopes of concern for the alpha spectroscopy are Uranium-235, Uranium-238, Plutonium-239/240, and Americium-241.

The letter written by M. A. Beck (dated October 23, 1991) concerning alpha/beta spectroscopy will not apply for this project.

9613491.2706

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector CE Helden and JG Lucas Date Sampled 6-25-91 Time 11:50, 12:15 hours

Company Contact Ron Mitchell Telephone (509) 376-5122

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B00ZM6	3 glass 120 ml, 1 glass	6-27-91 ~~stud~~ sludge	VOA – (2) 120 ml glass
B00ZM7	250 ml, and 2 plastic	sludge	Target Analyte Metals – (1) glass 250 ml
	250 ml		Nitrite / Nitrate, Sulfate, pH, Specific Conductance – (1) glass 120 ml
			Gross Alpha, Gross Beta, Carbon-14, Uranium-235/238, Pu 238/239, Pu 240, Pu 241, Tritium – (1) plastic 250 ml
		(1) plastic 250 ml	Nickel-63, Ru-106, Cs-134, Eu-152/154/155, Am-241, Cd-113, Nb-94, Se-79, Pd-107, Zr-93, Co-60, Sr-90, Tc-99, Cs-137

Field Information** On total activity data sheets sample # B00ZM1 is B00ZM6 and B00ZM2 is now B00ZM7. BK 6-27-91

Special Handling and/or Storage —

Possible Sample Hazards —

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 6/28/91

Analysis Required

3/22/96 M.H.

CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 07-020

CONTRACT ID: WESTINGHOUSE

SDG RECEIPT DATE: June 2, 1991

1.0 DESCRIPTION OF CASE:

Two soil samples were analyzed for TCL Volatile Organics according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision 2/88.

2.0 SAMPLE LIST:

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
BOOZM6	A1-07-020-01A	V	SOIL
BOOZM7	A1-07-020-02A	V	SOIL
BOOZM7R	A1-07-020-02AR	V	SOIL

3.0 COMMENTS:

3.1 SHIPPING AND DOCUMENTATION:

All samples were received unbroken and properly documented.

3.2 ANALYSIS:

3.2.1 VOLATILE ANALYSIS COMMENTS:

Internal standard area counts for both samples were very low compared to quantitation standard runs. This caused the surrogate spiking compounds to quant abnormally high. This same phenomenon was observed in the MS and MSD as well. Internal standard area counts for the method blank, however, were normal. The method blank was run on the same day, same instrument.

We suspected that the sample matrix itself was not allowing the internal standards to purge properly. One of the samples (BOOZM7) was chosen to be re-analyzed.

A similar pattern of low internal standard recoveries for the sample but high internal standard recoveries for the blank was repeated in the re-analysis. This confirms our suspicion that the sample matrix itself had affected the analysis. The results of both analyses have been included in the package.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this package and on the accompanying data diskette is authorized by the Lab Manager as verified by the following signature.

Dennis D. Wells
Laboratory Manager

9613491.2709

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 14

BOOZM6

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R11

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 89 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	91	U
74-83-9	Bromomethane	91	U
75-01-4	Vinyl Chloride	91	U
75-00-3	Chloroethane	91	U
75-09-2	Methylene Chloride	91	U
67-64-1	Acetone	770	
75-15-0	Carbon Disulfide	45	U
75-35-4	1,1-Dichloroethene	45	U
75-34-3	1,1-Dichloroethane	45	U
540-59-0	1,2-Dichloroethene (total)	45	U
67-66-3	Chloroform	45	U
107-06-2	1,2-Dichloroethane	45	U
78-93-3	2-Butanone	91	U
71-55-6	1,1,1-Trichloroethane	45	U
56-23-5	Carbon Tetrachloride	45	U
108-05-4	Vinyl Acetate	91	U
75-27-4	Bromodichloromethane	45	U
78-87-5	1,2-Dichloropropane	45	U
10061-01-5	cis-1,3-Dichloropropene	45	U
79-01-6	Trichloroethene	45	U
124-48-1	Dibromochloromethane	45	U
79-00-5	1,1,2-Trichloroethane	45	U
71-43-2	Benzene	45	U
10061-02-6	trans-1,3-Dichloropropene	45	U
75-25-2	Bromoform	45	U
108-10-1	4-Methyl-2-Pentanone	91	U
591-78-6	2-Hexanone	91	U
127-18-4	Tetrachloroethene	45	U
79-34-5	1,1,2,2-Tetrachloroethane	45	U
108-88-3	Toluene	45	U
108-90-7	Chlorobenzene	45	U
100-41-4	Ethylbenzene	45	U
100-42-5	Styrene	45	U
1330-20-7	Xylenes (total)	45	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 15

BOOZM6

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R11

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 89 Date Analyzed: 07/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 24

BOOZM7

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R14

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	U
74-83-9	Bromomethane	45	U
75-01-4	Vinyl Chloride	45	U
75-00-3	Chloroethane	45	U
75-09-2	Methylene Chloride	23	U
67-64-1	Acetone	45	U
75-15-0	Carbon Disulfide	23	U
75-35-4	1,1-Dichloroethene	23	U
75-34-3	1,1-Dichloroethane	23	U
540-59-0	1,2-Dichloroethene (total)	23	U
67-66-3	Chloroform	23	U
107-06-2	1,2-Dichloroethane	23	U
78-93-3	2-Butanone	45	U
71-55-6	1,1,1-Trichloroethane	23	U
56-23-5	Carbon Tetrachloride	23	U
108-05-4	Vinyl Acetate	45	U
75-27-4	Bromodichloromethane	23	U
78-87-5	1,2-Dichloropropane	23	U
10061-01-5	cis-1,3-Dichloropropene	23	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	23	U
79-00-5	1,1,2-Trichloroethane	23	U
71-43-2	Benzene	23	U
10061-02-6	trans-1,3-Dichloropropene	23	U
110-75-8	2-Chloroethoxy ethene	45	U
75-25-2	Bromoform	23	U
108-10-1	4-Methyl-2-Pentanone	45	U
591-78-6	2-Hexanone	45	U
127-18-4	Tetrachloroethene	23	U
79-34-5	1,1,2,2-Tetrachloroethane	23	U
108-88-3	Toluene	23	U
108-90-7	Chlorobenzene	23	U
100-41-4	Ethylbenzene	23	U
100-42-5	Styrene	23	U
1330-20-7	Xylenes (total)	23	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 25

BOOZM7

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R14

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOZM7R

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 722R05

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/22/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	U
74-83-9	Bromomethane	45	U
75-01-4	Vinyl Chloride	45	U
75-00-3	Chloroethane	45	U
75-09-2	Methylene Chloride	45	U
67-64-1	Acetone	450	
75-15-0	Carbon Disulfide	23	U
75-35-4	1,1-Dichloroethene	23	U
75-34-3	1,1-Dichloroethane	23	U
540-59-0	1,2-Dichloroethene (total)	23	U
67-66-3	Chloroform	23	U
107-06-2	1,2-Dichloroethane	23	U
78-93-3	2-Butanone	45	U
71-55-6	1,1,1-Trichloroethane	23	U
56-23-5	Carbon Tetrachloride	23	U
108-05-4	Vinyl Acetate	45	U
75-27-4	Bromodichloromethane	23	U
78-87-5	1,2-Dichloropropane	23	U
10061-01-5	cis-1,3-Dichloropropene	23	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	23	U
79-00-5	1,1,2-Trichloroethane	23	U
71-43-2	Benzene	23	U
10061-02-6	trans-1,3-Dichloropropene	23	U
75-25-2	Bromoform	23	U
108-10-1	4-Methyl-2-Pentanone	45	U
591-78-6	2-Hexanone	45	U
127-18-4	Tetrachloroethene	23	U
79-34-5	1,1,2,2-Tetrachloroethane	23	U
108-88-3	Toluene	23	U
108-90-7	Chlorobenzene	23	U
100-41-4	Ethylbenzene	23	U
100-42-5	Styrene	23	U
1330-20-7	Xylenes (total)	23	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOOZM7R

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 722R05

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/22/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

SqPAGE 1 9613491.2715 TMA/Norcal CHAIN OF CUSTODY ORD # NJ-06-252
RCVD: 06/28/91 DUE: 07/05/91 07/01/91 16:03:27 KEEP: 10/03/91 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS for FRACTIONS with work in DEPT: SV				
01C	B00ZM6	SC2	8240				
~~01D~~	~~B00ZM6~~	~~SC2~~	~~CO_1~~				
01E	B00ZM6	SC2	COND_S	NO2	NO3_S	PH_S	SO4_S
02C	B00ZM7	SC2	8240				
~~02D~~	~~B00ZM7~~	~~SC2~~	~~CO_1~~				
02E	B00ZM7	SC2	COND_S	NO2	NO3_S	PH_S	SO4_S

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Kermit Blum	7-1-91	ARL		C Harris	7/2

ii 3/22/94 M.H.

9613491.2716

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator Jonathan G. Lucas

Company Contact Ron Mitchell Telephone 376-5122

Project Designation/Sampling Locations 1607-H-2 Septic Tank Collection Date 6-25-91

Ice Chest No. Quail Field Logbook No.

Bill of Lading/Airbill No. 24742504 5 TT Offsite Property No. WA1-070383 #5

Method of Shipment Emery

Shipped to TMA/NORCAL 2030 Wright Avenue Richmond, CA 94804

Possible Sample Hazards/Remarks —

Sample Identification

B00Z M6 } 3 glass 120ml, 1 glass
B00Z M7 } 250ml, and 2 plastic 250ml

☐ Field Transfer of Custody	CHAIN OF POSSESSION	(Sign and Print Names)
Relinquished by C.E. Heiden C E Heiden	Received by: J. DeMarest J DeMarest	Date/Time: JLD 6/28/91 10:00
Relinquished by: J. DeMarest J DeMarest	Received by: Kermit Blum	Date/Time: 6/28/91 1100
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

iii 3/22/96 M.H.

CASE SUMMARY

INORGANIC GENERAL CHEMISTRY DATA

CASE NO. 07-020

SCOPE

Two soil samples were analyzed for the parameters listed below:

METHODOLOGY

The following EPA methods were used:

Nitrite 354.1
Nitrate 354.1
Sulfate 375.4
pH 150.1

DISCUSSION

The QC for Case No. 07-019 and 07-020 was batched together. See QC for Case No. 07-019 attached.

TABLE OF CONTENTS

I. Results
II. QC Summary
III. Calibrations
IV. Raw Data

WESTINGHOUSE HANFORD CO.

1A

INORGANIC GENERAL CHEMISTRY DATA SHEET

CASE NO.: 07-020

LAB NAME: TMA/ARLI WHC SAMPLE ID: B00ZM7

LAB CODE: TMAARL LAB SAMPLE ID: A1-07-020-02B

MATRIX (soil,water): SOIL

ANALYTE	RESULT	UNITS
Conductivity	136	umhos/cm
Nitrite	<1.0	mg/kg
Nitrate	5.0	mg/kg
Sulfate	7,115	mg/kg
pH	7.18	-

FORM I

9613491.2719

Federal Express 2914302705

August 13, 1991

TMA/ARLI
160 Taylor Street
Monrovia, CA 91016

Attention: Dennis Wells

Quality Control Narrative

Scope

Two (2) soil samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on July 5, 1991. The samples were analyzed for the USEPA CLP metals. The analysis was performed under Skinner and Sherman work order 9107047.

Methodology

The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788).

Discussion

All quality control requirements were met for these samples.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

Richard Purdy
Contract Laboratory Program
Program Manager

000001
11/23/92

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satis
Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis. C
will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the inv
amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc.
exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are hel
thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

9613491.2720

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00ZM6

Lab Name: SKINNER & SHERMAN LABS Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-01S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 10 2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600.00			P
7440-36-0	Antimony	30.30	U		P
7440-38-2	Arsenic	24.10			F
7440-39-3	Barium	1930.00			P
7440-41-7	Beryllium	1.80	U		P
7440-43-9	Cadmium	22.50			P
7440-70-2	Calcium	12200.00			P
7440-47-3	Chromium	1020.00			P
7440-48-4	Cobalt	16.60	B		P
7440-50-8	Copper	534.00			P
7439-89-6	Iron	29400.00			P
7439-92-1	Lead	419.00			P
7439-95-4	Magnesium	2940.00	B		P
7439-96-5	Manganese	158.00			P
7439-97-6	Mercury	34.10			CV
7440-02-0	Nickel	56.40	B		P
7440-09-7	Potassium	1030.00	B		P
7782-49-2	Selenium	7.80	U	W	F
7440-22-4	Silver	119.00			P
7440-23-5	Sodium	727.00	B		P
7440-28-0	Thallium	3.50	B		F
7440-62-2	Vanadium	47.00	B		P
7440-66-6	Zinc	4080.00			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

9613491.2721

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B00ZM7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-02S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 17.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600.00			P
7440-36-0	Antimony	18.60	U		P
7440-38-2	Arsenic	8.90	B		F
7440-39-3	Barium	4260.00			P
7440-41-7	Beryllium	1.70	B		P
7440-43-9	Cadmium	28.50			P
7440-70-2	Calcium	14400.00			P
7440-47-3	Chromium	2510.00			P
7440-48-4	Cobalt	19.60	B		P
7440-50-8	Copper	627.00			P
7439-89-6	Iron	18800.00			P
7439-92-1	Lead	499.00			P
7439-95-4	Magnesium	3000.00	B		P
7439-96-5	Manganese	113.00			P
7439-97-6	Mercury	37.00			CV
7440-02-0	Nickel	51.20			P
7440-09-7	Potassium	1060.00	B		P
7782-49-2	Selenium	4.00	U		F
7440-22-4	Silver	107.00			P
7440-23-5	Sodium	888.00	B		P
7440-28-0	Thallium	5.40	B	W	F
7440-62-2	Vanadium	43.40	B		P
7440-66-6	Zinc	6160.00			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

9613491.2722

TMA/SKINNER & SHERMAN LABS SAMPLE LOG-IN

CLIENT HANFORD-ARLI

S&S WORKORDER 9107047

PROTOCOL: CLP

No. OF SAMPLES:

2 (Soil) ___ (Water) ___ (Specify)

TURNAROUND: 33 DAYS

___ (Oil) ___ (Sludge) ___ (Drinking)

CUSTODIAN: A. Benney

SDG/Batch# N/A

COOLER TEMP: 4 oC or NA

CUSTODY SEAL - ~~PRESENT~~/ABSENT

~~INTACT~~/NOT

CLIENT CASE# N106252

PO/CONTRACT# NA

CONTACT DENNIS WELLS

TAGS: PRESENT/ABSENT/NA/SEE COC

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, #

COMMENTS:

AIRBILL # 9150870923 TRANSPORTER: FEDEX HAND DEL ___

SAMPLE CONTAINERS ~~INTACT~~/BROKEN (COMMENTS)

CLIENT COMMENTS? YES / NO

SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)

CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

	CLIENT ID	MATRIX	RECEIVED	QC	TEST(S)	HOLD TIME DATE/ TES
1	B007M6	soil	07/05/91	DS	Total metals	
2	↓ 7	↓	↓			
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
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27						

COMMENTS:

SUBCONTRACT: YES NO, TO: ___ DATE: [illegible]

Rev. 1.3

961349L2723

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector CE Helden and JG Lucas Date Sampled 6-25-91 Time 11:50, 12:15 hours

Company Contact Ron Mitchell Telephone (509) 376-5122

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B00ZM6	3 glass 120 ml, 1 glass 250 ml, and 2 plastic 250 ml	~~stud~~ 6-27-91 sludge	VOA – (2) 120 ml glass
B00ZM7		sludge	Target Analyte Metals – (1) glass 250 ml
			Nitrite / Nitrate, Sulfate, pH, Specific Conductance – (1) glass 120 ml
			Gross Alpha, Gross Beta, Carbon-14, Uranium-235/238, Pu 238/239, Pu 240, Pu 241, Tritium – (1) plastic 250 ml
		(1) plastic 250 ml	Nickel-63, Ru-106, Cs-134, Eu-152/154/155, Am-241, Cd-113, Nb-94, Se-79, Pd-107, Zr-93, Co-60, Sr-90, Tc-99, Cs-137

Field Information** On total activity data sheets sample # B00ZM1 is B00ZM6 and B00ZM2 is now B00ZM7. RK 6-27-91

Special Handling and/or Storage —

Possible Sample Hazards —

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 6/28/91

Analysis Required

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

00011S

A-6000-406 (05/

ATTACHMENT 1 DATA TABLE

Collection date: 6/25/91

Customer I.D.	TMA/Norcal Group No. 9508	Analysis	Results pCi/g ± 2 σ	% Moisture
BOOZ M6	1	Gross Alpha	15 ± 6	
		Gross Beta	18 ± 3	
		^{3}H	<200 (1)	89.6
		^{14}C	<30	
		^{63}Ni	<7	
		^{90}Sr	(7.9 ± 3.0)	E-01
		^{99}Tc	<0.6	
		^{234}U	(3.3 ± 0.4)	E+00
		^{235}U	(1.7 ± 0.7)	E-01
		^{238}U	(2.6 ± 0.3)	E+00
		^{238}Pu	<7	E-02
		$^{239,240}Pu$	(9. ± 5.)	E-02
		^{241}Pu	<9	E+00
		^{241}Am	<3.8	E-02
		Gamma Scan:		
		^{40}K	(7.027 ± 3.612)	E+00
		^{60}Co	(4.800 ± 2.968)	E-01
		^{137}Cs	(8.710 ± 3.174)	E-01
		^{152}Eu	(9.524 ± 6.578)	E-01
		^{226}Ra	(6.807 ± 4.456)	E-01
		^{228}Th	(8.610 ± 4.111)	E-01
		^{232}Th	<1.429	E+00
BOOZ M7	2	Gross Alpha	2 ± 4	
		Gross Beta	21 ± 3	
		^{3}H	<200 (1)	79.4
		^{14}C	<25	
		^{63}Ni	<5	
		^{90}Sr	<7.	E-01
		^{99}Tc	<0.4	
		^{234}U	(5.8 ± 0.7)	E+00
		^{235}U	(2.8 ± 1.1)	E-01
		^{238}U	(4.4 ± 0.6)	E+00
		^{238}Pu	<5	E-02
		$^{239,240}Pu$	(1.1 ± 0.4)	E-01
		^{241}Pu	<6	E+00
		^{241}Am	(9 ± 4)	E-02
		Gamma Scan:		
		^{40}K	(8.053 ± 4.941)	E+00
		^{60}Co	(1.379 ± 0.515)	E+00
		^{137}Cs	(7.450 ± 3.990)	E-01
		^{152}Eu	(1.122 ± 0.712)	E+00
		^{226}Ra	<1.362	E+00
		^{228}Th	(9.115 ± 5.397)	E-01
		^{232}Th	<2.041	E+00

(1) Unit is pCi/L.

iv 3/22/96 U.H.

ATTACHMENT 1 DATA TABLE

Collection date: 6/25/91

Customer I.D.	TMA/Norcal Group No. 9508	Analysis	Results pCi/g ± 2 σ	% Moisture
BOOZ M6	1	Gross Alpha	15 ± 6	
		Gross Beta	18 ± 3	
		^{3}H	<200 (1)	89.6
		^{14}C	<30	
		^{63}Ni	<7	
		^{90}Sr	(7.9 ± 3.0)	E-01
		^{99}Tc	<0.6	
		^{234}U	(3.3 ± 0.4)	E+00
		^{235}U	(1.7 ± 0.7)	E-01
		^{238}U	(2.6 ± 0.3)	E+00
		^{238}Pu	<7	E-02
		$^{239,240}Pu$	(9. ± 5.)	E-02
		^{241}Pu	<9	E+00
		^{241}Am	<3.8	E-02
		Gamma Scan:		
		^{40}K	(7.027 ± 3.612)	E+00
		^{60}Co	(4.800 ± 2.968)	E-01
		^{137}Cs	(8.710 ± 3.174)	E-01
		^{152}Eu	(9.524 ± 6.578)	E-01
		^{226}Ra	(6.807 ± 4.456)	E-01
		^{228}Th	(8.610 ± 4.111)	E-01
		^{232}Th	<1.429	E+00
BOOZ M7	2	Gross Alpha	2 ± 4	
		Gross Beta	21 ± 3	
		^{3}H	<200 (1)	79.4
		^{14}C	<25	
		^{63}Ni	<5	
		^{90}Sr	<7.	E-01
		^{99}Tc	<0.4	
		^{234}U	(5.8 ± 0.7)	E+00
		^{235}U	(2.8 ± 1.1)	E-01
		^{238}U	(4.4 ± 0.6)	E+00
		^{238}Pu	<5	E-02
		$^{239,240}Pu$	(1.1 ± 0.4)	E-01
		^{241}Pu	<6	E+00
		^{241}Am	(9 ± 4)	E-02
		Gamma Scan:		
		^{40}K	(8.053 ± 4.941)	E+00
		^{60}Co	(1.379 ± 0.515)	E+00
		^{137}Cs	(7.450 ± 3.990)	E-01
		^{152}Eu	(1.122 ± 0.712)	E+00
		^{226}Ra	<1.362	E+00
		^{228}Th	(9.115 ± 5.397)	E-01
		^{232}Th	<2.041	E+00

(1) Unit is pCi/L.

V 3/22/96 M.H.

CASE NARRATIVE

1. Project 1607-H-2, Septic Tank Sludge Sample results of analysis are reported. The sample ID's are:

Customer Sample ID	TMA/Norcal Group No.
BOOZ M6	9508-1
BOOZ M7	9508-2

2. The analysis reported are: Gross alpha, gross beta, ^{3}H, ^{14}C, ^{63}Ni, ^{90}Sr, ^{99}Tc, isotopic uranium, isotopic plutonium, including ^{241}Pu, ^{241}Am, and gamma scan.

3. Results are reported pCi/gram dry material with 2 σ errors except for ^{3}H. Tritium is reported as pCi/L of water collected by distillation and percent moisture is also reported.

4. The reagent blank (QC-5821) processed with the samples showed a ^{99}Tc background of 3.3 ± 0.3 pCi, which was subtracted from the results.

9613491.2727

Westinghouse Hanford Company	CHAIN OF CUSTODY	000010

Custody Form Initiator: Jonathan G. Lucas

Company Contact: Ron Mitchell Telephone: 376-5122

Project Designation/Sampling Locations: 1607-H-2 Septic Tank Collection Date: 6-25-91

Ice Chest No.: Quail Field Logbook No.:

Bill of Lading/Airbill No.: 247425045T Offsite Property No.: WA1-070383 #5

Method of Shipment: Emery

Shipped to: TMA/NORCAL 2030 Wright Avenue Richmond, CA 94804

Possible Sample Hazards/Remarks: —

Sample Identification

B00Z M6 } 3 glass 120ml, 1 glass
B00Z M7 } 250ml, and 2 plastic 250ml

☐ Field Transfer of Custody

CHAIN OF POSSESSION (Sign and Print Names)		
Relinquished by: C.E. Heiden C.E. Heiden	Received by: J. DeMarest J. DeMarest	Date/Time: 6/29/91 JLD 10:00
Relinquished by: J. DeMarest J. DeMarest	Received by: Kermit Blum	Date/Time: 6/28/91 1100
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/9

9613491.2728

000011

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector CE Helden and JG Lucas Date Sampled 6-25-91 Time 11:50, 12:15 hours

Company Contact Ron Mitchell Telephone (509) 376-5122

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B00ZM6	3 glass 120 ml, 1 glass 250 ml, and 2 plastic 250 ml	~~stud~~ 6-27-91 sludge	VOA – (2) 120 ml glass
B00ZM7		sludge	Target Analyte Metals – (1) glass 250 ml
			Nitrite / Nitrate, Sulfate, pH, Specific Conductance – (1) glass 120 ml
			Gross Alpha, Gross Beta, Carbon-14, Uranium-235/238, Pu 238/239, Pu 240, Pu 241, Tritium – (1) plastic 250 ml
		(1) plastic 250 ml	Nickel-63, Ru-106, Cs-134, Eu-152/154/155, Am-241, Cd-113, Nb-94, Se-79, Pd-107, Zr-93, Co-60, Sr-90, Tc-99, Cs-137

Field Information** On total activity data sheets sample # B00ZM1 is B00ZM6 and B00ZM2 is now B00ZM6. 6-27-91

Special Handling and/or Storage —

Possible Sample Hazards —

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 6/28/91

Analysis Required

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406 (05/

29 lbs. "Next Day Service"

Contractor	OFF-SITE PROPERTY CONTROL	
Westinghouse Hanford Co.		WM-0-0383 #5

PART I – TO BE COMPLETED BY CONTRACTOR

Department: Environmental Engineering Section: Technical Basis

The following items are to be shipped from: ☒ Government ☐ Contractor ☐ Other

Sending: Energy ☒ Contractor ☐ Other

Shipped to: TMA/NORCAL, 2030 Wright Avenue, Richmond, CA 94804

Off-site Custodian: Robert Fox

Sub Title: Sample Receipt

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	Poly Ice Chest – Glass and plastic jars of sludge in packing material and blue ice. Ice chest #Quail-BOOZM6 and BOOZM7	

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

Program not available on site.
Bill of Lading # 247425045 T

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No.	Date
[illegible]	910629	6-27-91

Location of Property (Area & Bldg.)	Contact	Phone
100-H 1607-H-2 Septic Tank	Ron Mitchell	376-5122

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
—	EB23C	—

Originated By	Date	Authorized By	Date
Ron Mitchell	6-27-91	RM Mitchell	6/27/91
Signature and Name of Property Control	**Custodian Date**	**Property Management Approval**	**Date**
		[illegible]	6/27/91

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[illegible]				
Date 6/27/91				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Green – Property Control Custodian (Issuing Office) Yellow – Retain Pink – Originator

54-3000-479 (09/89)

FORM OF PAYMENT

CASH ☐ GBL/CBL ☐ FCCOD ☐

PPD ☒ COL ☐ OTH ☐ COMAT ☐

EMERY WORLDWIDE — A CF Company

SERVICES

UNITED STATES / CANADA: Same Day ☐ AM ☒ Second Day ☐ PM ☐ Saturday Delivery ☐

INTERNATIONAL: Express ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

PULL FOR SHIPT. NO. TAB

E Shipper's Account Number: 850281585

Date: 06-27-91 | Origin: PSC | Shipment Number: 24242504 5 T

From:
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
US DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐

To:
ROBERT FOX
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA 94804
Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will collect consignee's check made payable only to the shipper for the value of the goods in the amount shown above.

Customer's Reference Numbers: EB23C 81220 W91-0-0383#5

Zip: 99352

E Consignee's Account Number | Zip

Description	Pcs.	L	W	H	Total Pieces	Total Weight (in Lbs.)
1 POLY ICE CHEST #QUAIL SLUDGE SAMPLES BOOZM6 & BOOZM7 W91-0-0383 #5	1				1	29

FOR INFORMATION OR RATES CALL 1-800 HI EMERY (1-800-443-6379)

Declared Value $

TODSR ☐ Haz Mat ☐ Edit ☐ A B C D E F G H I J K

1 2 3 4 5 6 / 7 8 9 0 1 2

OVERNIGHT DELIVERY
SIGNATURE SECURITY SERVICE

Envelope 9X12 ☒ Pack 12X15 ☒

Shipper's Signature X 6/27/91

International Shipments: Free Domicile ☐ Commodity Code

Third party Account Number mandatory for Third party billing. E Third Party Account Number

Base Charge

International Customs Value | International Insurance

Total Transportation Charges | Other Charges/Advance at Origin ☐ OCAO- $

1-OAK-A

Terms and Conditions on back

CONSIGNEE — PACKAGE COPY — 4

PLEASE TYPE OR USE BALL POINT PEN. REAR DOWN FIRMLY

FORM NO. 60001-46

000013

96134912730

961349L2731

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 14

BOOZM6

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R11

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 89 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	91	U
74-83-9	Bromomethane	91	U
75-01-4	Vinyl Chloride	91	U
75-00-3	Chloroethane	91	U
75-09-2	Methylene Chloride	91	U
67-64-1	Acetone	770	
75-15-0	Carbon Disulfide	45	U
75-35-4	1,1-Dichloroethene	45	U
75-34-3	1,1-Dichloroethane	45	U
540-59-0	1,2-Dichloroethene (total)	45	U
67-66-3	Chloroform	45	U
107-06-2	1,2-Dichloroethane	45	U
78-93-3	2-Butanone	91	U
71-55-6	1,1,1-Trichloroethane	45	U
56-23-5	Carbon Tetrachloride	45	U
108-05-4	Vinyl Acetate	91	U
75-27-4	Bromodichloromethane	45	U
78-87-5	1,2-Dichloropropane	45	U
10061-01-5	cis-1,3-Dichloropropene	45	U
79-01-6	Trichloroethene	45	U
124-48-1	Dibromochloromethane	45	U
79-00-5	1,1,2-Trichloroethane	45	U
71-43-2	Benzene	45	U
10061-02-6	trans-1,3-Dichloropropene	45	U
75-25-2	Bromoform	45	U
108-10-1	4-Methyl-2-Pentanone	91	U
591-78-6	2-Hexanone	91	U
127-18-4	Tetrachloroethene	45	U
79-34-5	1,1,2,2-Tetrachloroethane	45	U
108-88-3	Toluene	45	U
108-90-7	Chlorobenzene	45	U
100-41-4	Ethylbenzene	45	U
100-42-5	Styrene	45	U
1330-20-7	Xylenes (total)	45	U

9-9-9

9613491.2732

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. 15

BOOZM6

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R11

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 89 Date Analyzed: 07/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9-9-92
MM

9613491.2733

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00ZM6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-01S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 10.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600.00			P
7440-36-0	Antimony	30.30	U		P
7440-38-2	Arsenic	24.10			F
7440-39-3	Barium	1930.00			P
7440-41-7	Beryllium	1.80	U		P
7440-43-9	Cadmium	22.50			P
7440-70-2	Calcium	12200.00			P
7440-47-3	Chromium	1020.00			P
7440-48-4	Cobalt	16.60	B		P
7440-50-8	Copper	534.00			P
7439-89-6	Iron	29400.00			P
7439-92-1	Lead	419.00			P
7439-95-4	Magnesium	2940.00	B		P
7439-96-5	Manganese	158.00			P
7439-97-6	Mercury	34.10		J	CV
7440-02-0	Nickel	56.40	B		P
7440-09-7	Potassium	1030.00	B		P
7782-49-2	Selenium	7.80	U	~~W~~ J	F
7440-22-4	Silver	119.00			P
7440-23-5	Sodium	727.00	B		P
7440-28-0	Thallium	3:50	B		F
7440-62-2	Vanadium	47.00	B		P
7440-66-6	Zinc	4080.00			P
	Cyanide				NR

PBJ 4/20/92

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

9613491.2734

WESTINGHOUSE HANFORD CO.

1A

INORGANIC GENERAL CHEMISTRY DATA SHEET

CASE NO.: 07-020

LAB NAME: TMA/ARLI WHC SAMPLE ID: B00ZM6

LAB CODE: TMAARL LAB SAMPLE ID: A1-07-020-01B

MATRIX (soil,water): SOIL

ANALYTE	RESULT	UNITS
Conductivity	68 R	umhos/cm
Nitrite	1.2	mg/kg
Nitrate	15.2	mg/kg
Sulfate	4,425	mg/kg
pH	7.23 JR	-

FORM I

10-5-92 SC

PBA 4/20/93

9613491.2735

TMA

ATTACHMENT 1 DATA TABLE

Collection date: 6/25/91

use this column

Customer I.D.	TMA/Norcal Group No. 9508	Analysis	Results pCi/g ± 2 σ	% Moisture
BOOZ M6	1	Gross Alpha R	15 ± 6 R	
		Gross Beta	18 ± 3	
		^{3}H R	<200 (1)	89.6
		^{14}C R	<30	
		^{63}Ni R	<7	
		^{90}Sr R	(7.9 ± 3.0)	E-01
		^{99}Tc — UJ	<0.6	
		^{234}U	(3.3 ± 0.4)	E+00
		^{235}U	(1.7 ± 0.7)	E-01
		^{238}U	(2.6 ± 0.3)	E+00
		^{238}Pu R	<7	E-02
		$^{239,240}Pu$	(9. ± 5.)	E-02
		^{241}Pu	<9	E+00
		^{241}Am	<3.8	E-02
		Gamma Scan:		
		^{40}K	(7.027 ± 3.612) R	E+00
		^{60}Co	(4.800 ± 2.968)	E-01
		^{137}Cs R	(8.710 ± 3.174)	E-01
		^{152}Eu	(9.524 ± 6.578)	E-01
		^{226}Ra	(6.807 ± 4.456)	E-01
		^{228}Th	(8.610 ± 4.111)	E-01
		^{232}Th	<1.429	E+00
BOOZ M7	2	Gross Alpha	2 ± 4 R	
		Gross Beta R	21 ± 3	
		^{3}H R	<200 (1)	79.4
		^{14}C R	<25	
		^{63}Ni R	<5	
		^{90}Sr R	<7.	E-01
		^{99}Tc — UJ	<0.4	
		^{234}U	(5.8 ± 0.7)	E+00
		^{235}U	(2.8 ± 1.1)	E-01
		^{238}U	(4.4 ± 0.6)	E+00
		^{238}Pu R	<5	E-02
		$^{239,240}Pu$	(1.1 ± 0.4)	E-01
		^{241}Pu	<6	E+00
		^{241}Am	(9 ± 4)	E-02
		Gamma Scan:		
		^{40}K	(8.053 ± 4.941) R	E+00
		^{60}Co	(1.379 ± 0.515)	E+00
		^{137}Cs R	(7.450 ± 3.990)	E-01
		^{152}Eu	(1.122 ± 0.712)	E+00
		^{226}Ra	<1.362	E+00
		^{228}Th	(9.115 ± 5.397)	E-01
		^{232}Th	<2.041	E+00

BD 4/20/92

10/8/92 R.B.

(1) Unit is pCi/L.

9615491.2736

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 24

BOOZM7

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R14

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

NOT used 10-5-92 SC

DO NOT USE OR ENTER THIS DATA PBD 4/20/9

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	45	U J
74-83-9	Bromomethane	45	U
75-01-4	Vinyl Chloride	45	U
75-00-3	Chloroethane	45	U
75-09-2	Methylene Chloride	23	U
67-64-1	Acetone	45	U
75-15-0	Carbon Disulfide	23	U
75-35-4	1,1-Dichloroethene	23	U
75-34-3	1,1-Dichloroethane	23	U
540-59-0	1,2-Dichloroethene (total)	23	U
67-66-3	Chloroform	23	U
107-06-2	1,2-Dichloroethane	23	U
78-93-3	2-Butanone	45	U
71-55-6	1,1,1-Trichloroethane	23	U
56-23-5	Carbon Tetrachloride	23	U
108-05-4	Vinyl Acetate	45	U
75-27-4	Bromodichloromethane	23	U
78-87-5	1,2-Dichloropropane	23	U
10061-01-5	cis-1,3-Dichloropropene	23	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	23	U
79-00-5	1,1,2-Trichloroethane	23	U
71-43-2	Benzene	23	U
10061-02-6	trans-1,3-Dichloropropene	23	U
110-75-8	2-Chloroethoxy ethene	45	U
75-25-2	Bromoform	23	U
108-10-1	4-Methyl-2-Pentanone	45	U
591-78-6	2-Hexanone	45	U
127-18-4	Tetrachloroethene	23	U
79-34-5	1,1,2,2-Tetrachloroethane	23	U
108-88-3	Toluene	23	U
108-90-7	Chlorobenzene	23	U
100-41-4	Ethylbenzene	23	U
100-42-5	Styrene	23	U
1330-20-7	Xylenes (total)	23	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BOOZM7

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R14

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

Not used
105-92SC

9-9-92
MM

9613491.2738

31

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOZM7R

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 722R05

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/22/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	U
74-83-9	Bromomethane	45	U
75-01-4	Vinyl Chloride	45	U
75-00-3	Chloroethane	45	U
75-09-2	Methylene Chloride	45	U
67-64-1	Acetone	450	
75-15-0	Carbon Disulfide	23	U
75-35-4	1,1-Dichloroethene	23	U
75-34-3	1,1-Dichloroethane	23	U
540-59-0	1,2-Dichloroethene (total)	23	U
67-66-3	Chloroform	23	U
107-06-2	1,2-Dichloroethane	23	U
78-93-3	2-Butanone	45	U
71-55-6	1,1,1-Trichloroethane	23	U
56-23-5	Carbon Tetrachloride	23	U
108-05-4	Vinyl Acetate	45	U
75-27-4	Bromodichloromethane	23	U
78-87-5	1,2-Dichloropropane	23	U
10061-01-5	cis-1,3-Dichloropropene	23	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	23	U
79-00-5	1,1,2-Trichloroethane	23	U
71-43-2	Benzene	23	U
10061-02-6	trans-1,3-Dichloropropene	23	U
75-25-2	Bromoform	23	U
108-10-1	4-Methyl-2-Pentanone	45	U
591-78-6	2-Hexanone	45	U
127-18-4	Tetrachloroethene	23	U
79-34-5	1,1,2,2-Tetrachloroethane	23	U
108-88-3	Toluene	23	U
108-90-7	Chlorobenzene	23	U
100-41-4	Ethylbenzene	23	U
100-42-5	Styrene	23	U
1330-20-7	Xylenes (total)	23	U

JR

RD 4/2/92

10-5-92 SC

9613491.2739

32

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOOZM7R

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 722R05

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/22/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

10-5-92SC

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00ZM7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-02S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 17.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600.00			P
7440-36-0	Antimony	18.60	U		P
7440-38-2	Arsenic	8.90	B		F
7440-39-3	Barium	4260.00			P
7440-41-7	Beryllium	1.70	B		P
7440-43-9	Cadmium	28.50			P
7440-70-2	Calcium	14400.00			P
7440-47-3	Chromium	2510.00			P
7440-48-4	Cobalt	19.60	B		P
7440-50-8	Copper	627.00			P
7439-89-6	Iron	18800.00			P
7439-92-1	Lead	499.00			P
7439-95-4	Magnesium	3000.00	B		P
7439-96-5	Manganese	113.00			P
7439-97-6	Mercury	37.00		J	CV
7440-02-0	Nickel	51.20			P
7440-09-7	Potassium	1060.00	B		P
7782-49-2	Selenium	4.00	U		F
7440-22-4	Silver	107.00			P
7440-23-5	Sodium	888.00	B		P
7440-28-0	Thallium	5.40	B	W J	F
7440-62-2	Vanadium	43.40	B		P
7440-66-6	Zinc	6160.00			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

9613491.2741

WESTINGHOUSE HANFORD CO.

1A

INORGANIC GENERAL CHEMISTRY DATA SHEET

CASE NO.: 07-020

LAB NAME: TMA/ARLI

WHC SAMPLE ID: B00ZM7

LAB CODE: TMAARL

LAB SAMPLE ID: A1-07-020-02B

MATRIX (soil,water): SOIL

ANALYTE	RESULT	UNITS
Conductivity	136 R	umhos/cm
Nitrite	<1.0 U	mg/kg
Nitrate	5.0	mg/kg
Sulfate	7,115	mg/kg
pH	7.18 J R	-

FORM I

10-5-92 SC

PPD
4/20/93

ATTACHMENT 1 DATA TABLE

Collection date: 6/25/91

Customer I.D.	TMA/Norcal Group No. 9508	Analysis	Results pCi/g ± 2 σ	% Moisture
BOOZ M6	1	Gross Alpha	15 ± 6	
		Gross Beta	18 ± 3	
		^{3}H	<200 (1)	89.6
		^{14}C	<30	
		^{63}Ni	<7	
		^{90}Sr	(7.9 ± 3.0)	E-01
		^{99}Tc	<0.6	
		^{234}U	(3.3 ± 0.4)	E+00
		^{235}U	(1.7 ± 0.7)	E-01
		^{238}U	(2.6 ± 0.3)	E+00
		^{238}Pu	<7	E-02
		$^{239,240}Pu$	(9. ± 5.)	E-02
		^{241}Pu	<9	E+00
		^{241}Am	<3.8	E-02
		Gamma Scan:		
		^{40}K	(7.027 ± 3.612)	E+00
		^{60}Co	(4.800 ± 2.968)	E-01
		^{137}Cs	(8.710 ± 3.174)	E-01
		^{152}Eu	(9.524 ± 6.578)	E-01
		^{226}Ra	(6.807 ± 4.456)	E-01
		^{228}Th	(8.610 ± 4.111)	E-01
		^{232}Th	<1.429	E+00
BOOZ M7	2	Gross Alpha	2 ± 4	
		Gross Beta	21 ± 3	
		^{3}H	<200 (1)	79.4
		^{14}C	<25	
		^{63}Ni	<5	
		^{90}Sr	<7.	E-01
		^{99}Tc	<0.4	
		^{234}U	(5.8 ± 0.7)	E+00
		^{235}U	(2.8 ± 1.1)	E-01
		^{238}U	(4.4 ± 0.6)	E+00
		^{238}Pu	<5	E-02
		$^{239,240}Pu$	(1.1 ± 0.4)	E-01
		^{241}Pu	<6	E+00
		^{241}Am	(9 ± 4)	E-02
		Gamma Scan:		
		^{40}K	(8.053 ± 4.941)	E+00
		^{60}Co	(1.379 ± 0.515)	E+00
		^{137}Cs	(7.450 ± 3.990)	E-01
		^{152}Eu	(1.122 ± 0.712)	E+00
		^{226}Ra	<1.362	E+00
		^{228}Th	(9.115 ± 5.397)	E-01
		^{232}Th	<2.041	E+00

(1) Unit is pCi/L.

9613491.2743

ORGANIC QC - Holding Times

Name Ted Washington TW 3/12/92 Date 3-6-92

COMMENTS: All volatile holding times requirements were met.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - Surrogates

Name Ted Washington (TW 3-7-92) Date 3-7-92

COMMENTS: ALL OF THE SURROGATE COMPOUNDS WERE OUT OF CONTROL. THE SURROGATES WERE CHOSEN TO be representative OF ALL THE TARGET ANALYTES AND THE AFFECT THE SOIL MATRIX COULD HAVE ON THEM. THUS ALL TARGET ANALYTES ARE AFFECTED by THE SURROGATE RESULTS.

ACTION: QUALIFIED ALL TARGET ANALYTES (UJ OR J) ESTIMATED as per OSM PROTOCOLS.

sample #	constituent	value/qual
B00ZM6	ACETONE	J
B00ZM6	ALL OTHER ANALYTES	UJ
B00ZM7	ALL ANALYTES	UJ

sample #	constituent	value/qual

ORGANIC QC - MS/MSD

Name Ted Washington (TXW) 3/12/92 Date 3-6-92

COMMENTS: THERE WAS ONE ANALYTE OUT OF CONTROL IN THE MATRIX SPIKE ANALYSIS (TOLUENE). THE %RPD WERE ALL IN CONTROL AND ALL BUT TOLUENE'S % RECOVERY WAS IN CONTROL. SAMPLE 800ZM6 WAS USED FOR AN (TXW) 3-6-92

ACTION: TOLUENE WAS QUALIFIED (UJ OR J) ESTIMATED BASED ON THIS OUT OF CONTROL ANALYSIS AND THE OUT OF CONTROL SURROGATE ANALYSIS.

sample #	constituent	value/qual	sample #	constituent	value/qual
800ZM6	TOLUENE	UJ			
800ZM7	⊥	⊥			

ORGANIC QC - Blanks

Name Ted Washington (TW) 3-13-92 Date 3-6-92

COMMENTS: ~~No~~ No contaminants were found in the blanks that was detected in the samples. However methylene chloride was detected in blank VBL722 it's value was below the SQL and it was not detected in the samples thus no qualification was necessary.

ACTION: None - no actions required.

sample #	constituent	value/qual
All samples	methylene chloride	acceptable

sample #	constituent	value/qual

9613491.2747

ORGANIC QC - GC/MS Tune

Name Ted Washington TRW 3-12-92 Date 3-6-92

COMMENTS: All volatile tuning requirements were met for each day.

ACTION: None - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - Calibrations

Name Ted Washington (TW 3/17/92) Date 3-6-92

COMMENTS: All required volatile calibration results, initial and continuing met within control limits.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - Internal Standards

Name Ted Washington 3-12-92 Date 3-6-92

COMMENTS: FOUR OUT OF FIVE SAMPLES HAD ALL AREA COUNTS OUT OF CONTROL ON TWO SEPERATE RUNS. SAMPLES B00ZM6, B00ZM7, B00ZM6MS AND B00ZM6MSD HAD ALL AREA COUNTS OUT OF CONTROL.
ALL RETENTION TIMES WERE ACCEPTABLE.

ACTION: QUALIFIED ALL ASSOCIATED ANALYTES AND SAMPLES (UJ OR J) ESTIMATED AS PER OSM PROTOCOLS.

sample #	constituent	value/qual
B00ZM6	ACETONE	J
B00ZM6	ALL OTHER ANALYTES	UJ
B00ZM7	ALL ANALYTES	UJ

sample #	constituent	value/qual

ORGANIC QC - Other

Name Ted Washington (TW) 3-12-92 Date 3-6-92

COMMENTS: Overall QC. acceptable with attached qualifiers.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613491.2751

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 14

BOOZM6

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R11

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 89 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	91	~~U~~ UJ
74-83-9	Bromomethane	91	~~U~~ UJ
75-01-4	Vinyl Chloride	91	~~U~~ UJ
75-00-3	Chloroethane	91	~~U~~ UJ
75-09-2	Methylene Chloride	91	~~U~~ UJ
67-64-1	Acetone	770	J
75-15-0	Carbon Disulfide	45	~~U~~ UJ
75-35-4	1,1-Dichloroethene	45	~~U~~ UJ
75-34-3	1,1-Dichloroethane	45	~~U~~ UJ
540-59-0	1,2-Dichloroethene (total)	45	~~U~~ UJ
67-66-3	Chloroform	45	~~U~~ UJ
107-06-2	1,2-Dichloroethane	45	~~U~~ UJ
78-93-3	2-Butanone	91	~~U~~ UJ
71-55-6	1,1,1-Trichloroethane	45	~~U~~ UJ
56-23-5	Carbon Tetrachloride	45	~~U~~ UJ
108-05-4	Vinyl Acetate	91	~~U~~ UJ
75-27-4	Bromodichloromethane	45	~~U~~ UJ
78-87-5	1,2-Dichloropropane	45	~~U~~ UJ
10061-01-5	cis-1,3-Dichloropropene	45	~~U~~ UJ
79-01-6	Trichloroethene	45	~~U~~ UJ
124-48-1	Dibromochloromethane	45	~~U~~ UJ
79-00-5	1,1,2-Trichloroethane	45	~~U~~ UJ
71-43-2	Benzene	45	~~U~~ UJ
10061-02-6	trans-1,3-Dichloropropene	45	~~U~~ UJ
75-25-2	Bromoform	45	~~U~~ UJ
108-10-1	4-Methyl-2-Pentanone	91	~~U~~ UJ
591-78-6	2-Hexanone	91	~~U~~ UJ
127-18-4	Tetrachloroethene	45	~~U~~ UJ
79-34-5	1,1,2,2-Tetrachloroethane	45	~~U~~ UJ
108-88-3	Toluene	45	~~U~~ UJ
108-90-7	Chlorobenzene	45	~~U~~ UJ
100-41-4	Ethylbenzene	45	~~U~~ UJ
100-42-5	Styrene	45	~~U~~ UJ
1330-20-7	Xylenes (total)	45	~~U~~ UJ

9613491.2752

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 24

BOOZM7

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R14

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	~~U~~ UJ
74-83-9	Bromomethane	45	~~U~~ UJ
75-01-4	Vinyl Chloride	45	~~U~~ UJ
75-00-3	Chloroethane	45	~~U~~ UJ
75-09-2	Methylene Chloride	23	~~U~~ UJ
67-64-1	Acetone	45	~~U~~ UJ
75-15-0	Carbon Disulfide	23	~~U~~ UJ
75-35-4	1,1-Dichloroethene	23	~~U~~ UJ
75-34-3	1,1-Dichloroethane	23	~~U~~ UJ
540-59-0	1,2-Dichloroethene (total)	23	~~U~~ UJ
67-66-3	Chloroform	23	~~U~~ UJ
107-06-2	1,2-Dichloroethane	23	~~U~~ UJ
78-93-3	2-Butanone	45	~~U~~ UJ
71-55-6	1,1,1-Trichloroethane	23	~~U~~ UJ
56-23-5	Carbon Tetrachloride	23	~~U~~ UJ
108-05-4	Vinyl Acetate	45	~~U~~ UJ
75-27-4	Bromodichloromethane	23	~~U~~ UJ
78-87-5	1,2-Dichloropropane	23	~~U~~ UJ
10061-01-5	cis-1,3-Dichloropropene	23	~~U~~ UJ
79-01-6	Trichloroethene	23	~~U~~ UJ
124-48-1	Dibromochloromethane	23	~~U~~ UJ
79-00-5	1,1,2-Trichloroethane	23	~~U~~ UJ
71-43-2	Benzene	23	~~U~~ UJ
10061-02-6	trans-1,3-Dichloropropene	23	~~U~~ UJ
110-75-8	2-Chloroethoxy ethene	45	~~U~~ UJ
75-25-2	Bromoform	23	~~U~~ UJ
108-10-1	4-Methyl-2-Pentanone	45	~~U~~ UJ
591-78-6	2-Hexanone	45	~~U~~ UJ
127-18-4	Tetrachloroethene	23	~~U~~ UJ
79-34-5	1,1,2,2-Tetrachloroethane	23	~~U~~ UJ
108-88-3	Toluene	23	~~U~~ UJ
108-90-7	Chlorobenzene	23	~~U~~ UJ
100-41-4	Ethylbenzene	23	~~U~~ UJ
100-42-5	Styrene	23	~~U~~ UJ
1330-20-7	Xylenes (total)	23	~~U~~ UJ

FXW 5/12-92

9613491.2253

OSM ORGANIC DATA ASSESSMENT

DATE 3-6-92

SAMPLES/MATRIX B002M6 B002M7 BOTH SOILS

REVIEWED BY Ted Washington 3-12-92

LABORATORY TMA

CASE # 100-HR-1

SDG # B002M6

DATA ASSESSMENT SUMMARY

	VOA	ABN	PEST
1. Holding Times (Form I)	O		
2. Surrogate Recovery (II)	M		
3. Matrix Spike/ MSD (III)	X		
4. Blanks (IV)	~~O~~ X 3-11-92		
5. GC/MS Tune (V)	O		
6. Calibration (VI-VII; VIII pest)	O		
7. Internal Standards (VIII)	X		
8. Instr. Perform. (IX pest)			
9. Other ( )	O		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems, some data may be unusable

OVERALL ASSESSMENT: Data package acceptable with attached qualifiers. ~~The~~ All analytes were qualified estimated due to the out of control surrogates

NOTES : HEIS #'s located in box in upper right hand corner

Refer to the corresponding attachments for explanation of any problems.

ok to transmit

4/4/92

9613491.2754

OSM ORGANIC DATA ASSESSMENT

DATE 3-6-92 SAMPLES/MATRIX B002M6 B002M7 BOTH SOILS

REVIEWED BY Ted Washington

LABORATORY TMA

CASE # 100-HR-1

SDG # B002M6

DATA ASSESSMENT SUMMARY

	VOA	ABN	PEST
1. Holding Times (Form I)	O		
2. Surrogate Recovery (II)			
3. Matrix Spike/ MSD (III)	X		
4. Blanks (IV)	O		
5. GC/MS Tune (V)	O		
6. Calibration (VI-VII; VIII pest)	O		
7. Internal Standards (VIII)	X		
8. Instr. Perform. (IX pest)			
9. Other ( )	O		

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems, some data may be unusable

OVERALL ASSESSMENT: _____

NOTES : _____

Refer to the corresponding attachments for explanation of any problems.

9613491.2755

ORGANIC QC - Holding Times

Name Ted Washington Date 3-6-92

COMMENTS: ALL VOLATILE holding Times requirements were met.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - Surrogates

Name Ted Washington Date 3-7-92

COMMENTS: ALL OF THE SURROGATE COMPOUNDS WERE OUT OF CONTROL. THE SURROGATES WERE CHOOSEN TO be REPRESENTATIVE OF ALL THE TARGET ANALYTES AND THE AFFECT THE SOIL MATRIX COULD HAVE ON THEM. THUS ALL TARGET ANALYTES ARE AFFECTED by THE SURROGATE RESULTS.

ACTION: QUALIFIED ALL TARGET ANALYTES (UJ OR J) ESTIMATED AS PER OSM PROTOCOLS.

sample #	constituent	value/qual
B00ZM6	ACETONE	J
B00ZM6	ALL OTHER ANALYTES	UJ
B00ZM7	ALL ANALYTES	UJ

sample #	constituent	value/qual

9613491.2757

ORGANIC QC - Surrogates

Name Ted Washington Date 3-7-92

COMMENTS: ALL OF THE SURROGATE COMPOUNDS WERE OUT CONTROL, IT WAS BELIEVED THAT SOMETHING IN THE SAMPLE MATRIX WAS PREVENTING THE SURROGATE FROM MIXING WITH THE SAMPLE

ACTION:

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - MS/MSD

Name Ted Washington Date 3-6-92

COMMENTS: THERE WAS ONE ANALYTE OUT OF CONTROL IN THE MATRIX SPIKE ANALYSIS (TOLUENE). THE %RPD WERE ALL IN CONTROL AND ALL BUT TOLUENE'S % RECOVERY WAS IN CONTROL. SAMPLE B00ZM6 WAS USED FOR ANA

FXQ 3-6-92

ACTION: TOLUENE WAS QUALIFIED (UJ OR J) ESTIMATED BASED ON THIS OUT OF CONTROL ANALYSIS AND THE OUT OF CONTROL SURROGATE ANALYSIS.

sample #	constituent	value/qual	sample #	constituent	value/qual
B00ZM6	TOLUENE	UJ			
B00ZM7	⊥	⊥			

ORGANIC QC - Blanks

Name Ted Washington Date 3-6-92

COMMENTS: No contaminants found in the blanks, that were detected in the samples. All blank requirements were met.

ACTION: None - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613191.2760

ORGANIC QC - GC/MS Tune

Name Ted Washington Date 3-6-92

COMMENTS: All volatile tunning requirements were met for each day.

ACTION: None - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - Calibrations

Name _____ Date _____

COMMENTS: ALL Required VOLATILE CALIBRATION RESULTS, INITIAL and CONTINUING MET WITHIN CONTROL LIMITS.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

ORGANIC QC - Internal Standards

Name Ted Washington Date 3-6-92

COMMENTS: FOUR OUT OF FIVE SAMPLES HAD ALL AREA COUNTS OUT OF CONTROL ON TWO SEPERATE RUNS. SAMPLES B00ZM6, B00ZM7, B00ZM6MS AND B00ZM6MSD HAD ALL AREA COUNTS OUT OF CONTROL. ALL RETENTION TIMES WERE ACCEPTABLE.

ACTION: QUALIFIED ALL ASSOCIATED ANALYTES AND SAMPLES (UJ OR J) ESTIMATED AS PER OSM PROTOCOLS.

sample #	constituent	value/qual
B00ZM6	ACETONE	J
B00ZM6	ALL OTHER ANALYTES	UJ
B00ZM7	ALL ANALYTES	UJ

sample #	constituent	value/qual

ORGANIC QC - Other

Name Ted Washington Date 3-6-92

COMMENTS: Overall QC. Acceptable with attached qualifiers.

ACTION: None - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613491.2764

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 14

BOOZM6

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R11

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 89 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	91	~~U~~ UJ
74-83-9	Bromomethane	91	~~U~~ UJ
75-01-4	Vinyl Chloride	91	~~U~~ UJ
75-00-3	Chloroethane	91	~~U~~ UJ
75-09-2	Methylene Chloride	91	~~U~~ UJ
67-64-1	Acetone	770	J
75-15-0	Carbon Disulfide	45	~~U~~ UJ
75-35-4	1,1-Dichloroethene	45	~~U~~ UJ
75-34-3	1,1-Dichloroethane	45	~~U~~ UJ
540-59-0	1,2-Dichloroethene (total)	45	~~U~~ UJ
67-66-3	Chloroform	45	~~U~~ UJ
107-06-2	1,2-Dichloroethane	45	~~U~~ UJ
78-93-3	2-Butanone	91	~~U~~ UJ
71-55-6	1,1,1-Trichloroethane	45	~~U~~ UJ
56-23-5	Carbon Tetrachloride	45	~~U~~ UJ
108-05-4	Vinyl Acetate	91	~~U~~ UJ
75-27-4	Bromodichloromethane	45	~~U~~ UJ
78-87-5	1,2-Dichloropropane	45	~~U~~ UJ
10061-01-5	cis-1,3-Dichloropropene	45	~~U~~ UJ
79-01-6	Trichloroethene	45	~~U~~ UJ
124-48-1	Dibromochloromethane	45	~~U~~ UJ
79-00-5	1,1,2-Trichloroethane	45	~~U~~ UJ
71-43-2	Benzene	45	~~U~~ UJ
10061-02-6	trans-1,3-Dichloropropene	45	~~U~~ UJ
75-25-2	Bromoform	45	~~U~~ UJ
108-10-1	4-Methyl-2-Pentanone	91	~~U~~ UJ
591-78-6	2-Hexanone	91	~~U~~ UJ
127-18-4	Tetrachloroethene	45	~~U~~ UJ
79-34-5	1,1,2,2-Tetrachloroethane	45	~~U~~ UJ
108-88-3	Toluene	45	~~U~~ UJ
108-90-7	Chlorobenzene	45	~~U~~ UJ
100-41-4	Ethylbenzene	45	~~U~~ UJ
100-42-5	Styrene	45	~~U~~ UJ
1330-20-7	Xylenes (total)	45	~~U~~ UJ

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOZM7

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A107020-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 709R14

Level: (low/med) LOW Date Received: 07/02/91

% Moisture: not dec. 78 Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	~~U~~ UJ
74-83-9	Bromomethane	45	~~U~~ UJ
75-01-4	Vinyl Chloride	45	~~U~~ UJ
75-00-3	Chloroethane	45	~~U~~ UJ
75-09-2	Methylene Chloride	23	~~U~~ UJ
67-64-1	Acetone	45	~~U~~ UJ
75-15-0	Carbon Disulfide	23	~~U~~ UJ
75-35-4	1,1-Dichloroethene	23	~~U~~ UJ
75-34-3	1,1-Dichloroethane	23	~~U~~ UJ
540-59-0	1,2-Dichloroethene (total)	23	~~U~~ UJ
67-66-3	Chloroform	23	~~U~~ UJ
107-06-2	1,2-Dichloroethane	23	~~U~~ UJ
78-93-3	2-Butanone	45	~~U~~ UJ
71-55-6	1,1,1-Trichloroethane	23	~~U~~ UJ
56-23-5	Carbon Tetrachloride	23	~~U~~ UJ
108-05-4	Vinyl Acetate	45	~~U~~ UJ
75-27-4	Bromodichloromethane	23	~~U~~ UJ
78-87-5	1,2-Dichloropropane	23	~~U~~ UJ
10061-01-5	cis-1,3-Dichloropropene	23	~~U~~ UJ
79-01-6	Trichloroethene	23	~~U~~ UJ
124-48-1	Dibromochloromethane	23	~~U~~ UJ
79-00-5	1,1,2-Trichloroethane	23	~~U~~ UJ
71-43-2	Benzene	23	~~U~~ UJ
10061-02-6	trans-1,3-Dichloropropene	23	~~U~~ UJ
110-75-8	2-Chloroethoxy ethene	45	~~U~~ UJ
75-25-2	Bromoform	23	~~U~~ UJ
108-10-1	4-Methyl-2-Pentanone	45	~~U~~ UJ
591-78-6	2-Hexanone	45	~~U~~ UJ
127-18-4	Tetrachloroethene	23	~~U~~ UJ
79-34-5	1,1,2,2-Tetrachloroethane	23	~~U~~ UJ
108-88-3	Toluene	23	~~U~~ UJ
108-90-7	Chlorobenzene	23	~~U~~ UJ
100-41-4	Ethylbenzene	23	~~U~~ UJ
100-42-5	Styrene	23	~~U~~ UJ
1330-20-7	Xylenes (total)	23	~~U~~ UJ

Page: 1 9613491.2766 INA/Norcal CHAIN OF CUSTODY ORD # NI-06-252

RCVD: 06/28/91 DUE: 07/05/91 07/01/91 16:03:27 KEEP: 10/03/91 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS for FRACTIONS with work in DEPT: SU				
01C	B00ZM6	SC2	8240				
~~01D~~	~~B00ZM6~~	~~SC2~~	~~CO_1~~				
01E	B00ZM6	SC2	COND_S	NO2	NO3_S	PH_S	SO4_S
02C	B00ZM7	SC2	8240				
~~02D~~	~~B00ZM7~~	~~SC2~~	~~CO_1~~				
02E	B00ZM7	SC2	COND_S	NO2	NO3_S	PH_S	SO4_S

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Kermit Blum	7-1-91	ARL 1		C Garcia	7/2

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Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: Jonathan G. Lucas

Company Contact: Ron Mitchell Telephone: 376-5122

Project Designation/Sampling Locations: 1607-H-2 Septic Tank Collection Date: 6-25-91

Ice Chest No.: Quail Field Logbook No.:

Bill of Lading/Airbill No.: 24742504 5 TT Offsite Property No.: WA1-012383 #5

Method of Shipment: Emery

Shipped to: TMA/NORCAL 2030 Wright Avenue Richmond, CA 94804

Possible Sample Hazards/Remarks: —

Sample Identification

B00Z M6 } 3 glass 120ml, 1 glass
B00Z M7 } 250ml, and 2 plastic 250ml

☐ Field Transfer of Custody

CHAIN OF POSSESSION		(Sign and Print Names)
Relinquished by: C.E. Heiden C.E. Heiden	Received by: J. DeMarest J. DeMarest	Date/Time: 6/28/91 JLD 10:00
Relinquished by: J. DeMarest J. DeMarest	Received by: Kermit Blum	Date/Time: 6/28/91 1100
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

9613491.2768

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector CE Helden and JG Lucas Date Sampled 6-25-91 Time 11:50, 12:15 hours

Company Contact Ron Mitchell Telephone (509) 376-5122

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B00ZM6	3 glass 120 ml, 1 glass 250 ml, and 2 plastic 250 ml	6-27-91 ~~slud~~ sludge	VOA – (2) 120 ml glass
B00ZM7		sludge	Target Analyte Metals – (1) glass 250 ml
			Nitrite / Nitrate, Sulfate, pH, Specific Conductance – (1) glass 120 ml
			Gross Alpha, Gross Beta, Carbon-14, Uranium-235/238, Pu 238/239, Pu 240, Pu 241, Tritium – (1) plastic 250 ml
		(1) plastic 250 ml	Nickel-63, Ru-106, Cs-134, Eu-152/154/155, Am-241, Cd-113, Nb-94, Se-79, Pd-107, Zr-93, Co-60, Sr-90, Tc-99, Cs-137

Field Information** On total activity data sheets sample # B00ZM1 is B00ZM6 and B00ZM2 is now B00ZM7. RX 6-27-91

Special Handling and/or Storage —

Possible Sample Hazards —

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 6/28/91

Analysis Required

CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 07-020

CONTRACT ID: WESTINGHOUSE

SDG RECEIPT DATE: June 2, 1991

1.0 DESCRIPTION OF CASE:

Two soil samples were analyzed for TCL Volatile Organics according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision 2/88.

2.0 SAMPLE LIST:

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
BOOZM6	A1-07-020-01A	V	SOIL
BOOZM7	A1-07-020-02A	V	SOIL
BOOZM7R	A1-07-020-02AR	V	SOIL

3.0 COMMENTS:

3.1 SHIPPING AND DOCUMENTATION:

All samples were received unbroken and properly documented.

3.2 ANALYSIS:

3.2.1 VOLATILE ANALYSIS COMMENTS:

Internal standard area counts for both samples were very low compared to quantitation standard runs. This caused the surrogate spiking compounds to quant abnormally high. This same phenomenon was observed in the MS and MSD as well. Internal standard area counts for the method blank, however, were normal. The method blank was run on the same day, same instrument.

We suspected that the sample matrix itself was not allowing the internal standards to purge properly. One of the samples (BOOZM7) was chosen to be re-analyzed.

A similar pattern of low internal standard recoveries for the sample but high internal standard recoveries for the blank was repeated in the re-analysis. This confirms our suspicion that the sample matrix itself had affected the analysis. The results of both analyses have been included in the package.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data in this package and on the accompanying data diskette is authorized by the Lab Manager as verified by the following signature.

Dennis D. Wells
Laboratory Manager

9613491.2771

CASE NO. 07-020

VOLATILES

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	VBL709	95	93	90	0	0
02	VBL722	95	96	94	0	0

	QC LIMITS
S1 (TOL) = Toluene-d8	(88-110)
S2 (BFB) = Bromofluorobenzene	(86-115)
S3 (DCE) = 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

2B
SOIL VOLATILE SURROGATE RECOVERY

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL) #	S2 (BFB) #	S3 (DCE) #	OTHER	TOT OUT
01	BOOZM6	130 *	66 *	110	0	2
02	BOOZM7	130 *	71 *	121	0	2
03	BOOZM7R	122 *	71 *	99	0	2
04	BOOZM6MS	141 *	72 *	121	0	2
05	BOOZM6MSD	135 *	62 *	110	0	2

	QC LIMITS
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = Bromofluorobenzene	(74-121)
S3 (DCE) = 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix Spike - EPA Sample No.: BOOZM6 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	455	0	443	97	59-172
Trichloroethene	455	0	354	78	62-137
Benzene	455	0	452	99	66-142
Toluene	455	0	545	120	59-139
Chlorobenzene	455	0	507	111	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	455	528	116	-18	22	59-172
Trichloroethene	455	445	98	-23	24	62-137
Benzene	455	531	117	-17	21	66-142
Toluene	455	643	141 *	-16	21	59-139
Chlorobenzene	455	565	124	-11	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 1 out of 10 outside limits

COMMENTS: CLP,07020V,,BOOZM6,L,S,A107020--01A,VOA,EPA PACK,709R03,BFB709B,709R02,,,

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4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Lab File ID: 709R02 Lab Sample ID: WB70991

Date Analyzed: 07/09/91 Time Analyzed: 1154

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

Instrument ID: 4500

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	BOOZM6	A107020-01A	709R11	1818
02	BOOZM7	A107020-02A	709R14	2013
03	BOOZM6MS	A107020-01A	709R12	1856
04	BOOZM6MSD	A107020-01A	709R13	1935

COMMENTS: CLP,,,VBL709,L,W,WB70991,VOA,BLANK PACK,709R03,BFB709B,,,

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Lab File ID: 722R02 Lab Sample ID: WB72291

Date Analyzed: 07/22/91 Time Analyzed: 1321

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

Instrument ID: 4500

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	BOOZM7R	A107020-02A	722R05	1639

COMMENTS: CLP,,,VBL722,L,W,WB72291,VOA,BLANK PACK,722R01,BFB722,,,

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Lab File ID: BFB708A BFB Injection Date: 07/08/91

Instrument ID: 4500 BFB Injection Time: 0856

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.0
75	30.0 - 60.0% of mass 95	44.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.0
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	75.6
175	5.0 - 9.0% of mass 174	4.5 (5.9)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.6 (98.7)1
177	5.0 - 9.0% of mass 176	3.8 (5.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC-200	200PPB-V708	708R03	07/08/91	1038
02	IC-020	20PPB-V708	708R04	07/08/91	1119
03	IC-100	100PPB-V708	708R05	07/08/91	1157
04	IC-150	150PPB-V708	708R06	07/08/91	1236
05	IC-050	50PPB-V708	708R07	07/08/91	1315

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5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Lab File ID: BFB709B BFB Injection Date: 07/09/91

Instrument ID: 4500 BFB Injection Time: 1016

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	23.5
75	30.0 - 60.0% of mass 95	46.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	74.0
175	5.0 - 9.0% of mass 174	4.2 (5.7)1
176	Greater than 95.0%, but less than 101.0% of mass 174	73.5 (99.3)1
177	5.0 - 9.0% of mass 176	4.3 (5.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VBL709	WB70991	709R02	07/09/91	1154
02	50PPB-CC	50PPB-V708	709R03	07/09/91	1233
03	BOOZM6	A107020-01A	709R11	07/09/91	1818
04	BOOZM6MS	A107020-01A	709R12	07/09/91	1856
05	BOOZM6MSD	A107020-01A	709R13	07/09/91	1935
06	BOOZM7	A107020-02A	709R14	07/09/91	2013

5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Lab File ID: BFB715A BFB Injection Date: 07/15/91

Instrument ID: 4500 BFB Injection Time: 0920

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	22.6
75	30.0 - 60.0% of mass 95	45.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	83.5
175	5.0 - 9.0% of mass 174	4.3 (5.1)1
176	Greater than 95.0%, but less than 101.0% of mass 174	80.2 (96.1)1
177	5.0 - 9.0% of mass 176	4.4 (5.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC-050	50PPB-V708	715R01	07/15/91	1204
02	IC-200	200PPB-V708	715R02	07/15/91	1242
03	IC-020	20PPB-V708	715R03	07/15/91	1320
04	IC-100	100PPB-V708	715R04	07/15/91	1359
05	IC-150	150PPB-V708	715R05	07/15/91	1437

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5A
VOLATILE ORGANIC GC/MS TUNING AND MASS
CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Lab File ID: BFB722 BFB Injection Date: 07/22/91

Instrument ID: 4500 BFB Injection Time: 1223

Matrix:(soil/water) WATER Level:(low/med) LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.3
75	30.0 - 60.0% of mass 95	47.3
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.8
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	60.0
175	5.0 - 9.0% of mass 174	4.2 (7.0)1
176	Greater than 95.0%, but less than 101.0% of mass 174	60.5 (100.8)1
177	5.0 - 9.0% of mass 176	5.2 (8.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	50PPB-CC	50PPB-V708	722R01	07/22/91	1243
02	VBL722	WB72291	722R02	07/22/91	1321
03	BOOZM7R	A107020-02A	722R05	07/22/91	1639

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 103

VBL709

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WB70991

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 709R02

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/09/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
110-75-8	2-Chloroethoxy ethene	10	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	Xylenes (total)	5	U

961349L2782

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 110

VBL722

Lab Name: TMA/ARLI Contract: WESTINHOUSE

Lab Code: TMALA Case No.: 07020V SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: WB72291

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 722R02

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 07/22/91

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	J
67-64-1	Acetone	10	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	2	J
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	Xylenes (total)	5	U

9613491.2783

OSM INORGANIC DATA ASSESSMENT

DATE 3-5-92 SAMPLES/MATRIX B00ZM6 B00ZM7 BOTH SOILS

REVIEWED BY Ted Washington TW 3-6-92

LABORATORY TMA

CASE # 100-HR-1

SDG # B00ZM6

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CN
1. Calibrations (Form II)	O	O	O	
2. Blanks (III)	~~O~~ X JJ 4/4/92	O	O	
3. ICS (IV)	O			
4. Matrix Spike (V)	O	O	O	
5. Duplicate Analysis (VI)	O	O	O	
6. LCS (VII)	O	O		
7. Serial Dilution (IX)	X			
8. GFAA		X		
9. Holding Times (XIV)	O	O	X	
10. Other QC	O	O	O	

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: DATA package acceptable with attached qualifiers.

NOTES: HRTS #'s located in upper right hand corner of Form I's.

o Refer to the corresponding attachments for explanation of any problems.

ok to transmit

JJ 4/4/92

9613491.2784

INORGANIC QC - Calibrations

Name Ted Washington 3-6-92 Date 3-5-92

COMMENTS: ALL INSTRUMENTS (ICP, AA, CV) WERE CALIBRATED AND ALL INITIAL AND CONTINUING CALIBRATION REQUIREMENTS WERE MET.

ACTION: NONE - NO ACTIONS Required.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Blanks

Name Ted Washington Date 3-5-92

COMMENTS: Al, Ca, Na detected in blanks at levels < CRDL

ACTION: qualify all associated results as per OSM guidelines

sample #	constituent	value/qual	sample #	constituent	value/qual
-all results acceptable w/out qualification					

INORGANIC QC - ICS

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: THE MINIMUM NUMBER OF ICS WERE RUN AND AT THE PROPER TIME. ALL RESULTS WERE WITHIN CONTROL LIMITS OF ±20%. ALL REQUIREMENTS WERE MET. ~~SAMPLE A0023M6 WAS USED FOR ICP ICS.~~ JF 4/4/92

ACTION: NONE - NO ACTIONS REQUIRED.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Matrix Spike

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: ALL MATRIX SPIKE REQUIREMENT MET FOR ICP, AA, and CV. SAMPLE B002M6S WAS USED FOR THE ANALYSIS.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Duplicate Analysis

Name Ted Washington (TXW 3-6-92) Date 3-5-92

COMMENTS: ALL Duplicate analysis requirements met for the soil analysis. Sample ~~[illegible]~~ B002M6D was used for the analysis.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - LCS

Name Ted Washington TRW 3-6-92 Date 3-5-92

COMMENTS: All samples were tested as solids and they were all within control limits. Sample ~~B0DZM6 was used for the laboratory control sample~~ JK 4/9/92

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613491.2790

INORGANIC QC - Serial Dilution

Name Ted Washington Date 3-5-92

COMMENTS: THERE WERE FOUR ANALYTES OUT OF CONTROL, ALL OTHER WERE ACCEPTABLE. SAMPLE B002M6L WAS USED FOR THE SERIAL DILUTION ANALYSIS.

ACTION: QUALIFIED ALL OUT OF CONTROL ANALYTES AND AFFECTED SAMPLES (UJ OR J) ESTIMATED AS PER OSM PROTOCOLS.

sample #	constituent	value/qual
BOTH SAMPLES	LEAD	J
	SILVER	
	SODIUM	
	VANADIUM	

sample #	constituent	value/qual

9613491.2791

INORGANIC QC - Holding Times

Name Ted WASHINGTON TW 3-6-92 Date 3-5-92

COMMENTS: Holding Time requirements were with all metals except mercury. Mercury has a 28 day holding period allowed, but it was held for 36 days.

ACTION: Qualified out of control analytes and affected samples (UJ or J) estimated as per OSM protocols.

sample #	constituent	value/qual
BOTH samples	MERCURY	J

sample #	constituent	value/qual

INORGANIC QC - GFAA

Name T. Washington for Date 3-5-92

COMMENTS: GFAA analytical sequence ok
- analytical spike recoveries outside limits for Tl, Se, As on the two samples (see below)

ACTION: qualify associated results as per OSM guidelines

sample #	constituent	value/qual	sample #	constituent	value/qual
B00ZM6	Se	UJ			
B00ZM7	Tl	J			
	As	J			

INORGANIC QC - other

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: Acceptable with attached qualifiers.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613491.3794

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00ZM6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-01S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 10.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600.00			P
7440-36-0	Antimony	30.30	U		P
7440-38-2	Arsenic	24.10			F
7440-39-3	Barium	1930.00			P
7440-41-7	Beryllium	1.80	U		P
7440-43-9	Cadmium	22.50			P
7440-70-2	Calcium	12200.00			P
7440-47-3	Chromium	1020.00			P
7440-48-4	Cobalt	16.60	B		P
7440-50-8	Copper	534.00			P
7439-89-6	Iron	29400.00			P
7439-92-1	Lead	419.00		J	P
7439-95-4	Magnesium	2940.00	B		P
7439-96-5	Manganese	158.00			P
7439-97-6	Mercury	34.10		J	CV
7440-02-0	Nickel	56.40	B		P
7440-09-7	Potassium	1030.00	B		P
7782-49-2	Selenium	7.80	~~N~~	W UJ	F
7440-22-4	Silver	119.00		J	P
7440-23-5	Sodium	727.00	~~B~~	J	P
7440-28-0	Thallium	3.50	B		F
7440-62-2	Vanadium	47.00	~~B~~	J	P
7440-66-6	Zinc	4080.00			P
	Cyanide				NR

For TW 4/4/92

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

9613491.2795

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: 800ZM7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: 800ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-02S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 17.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600.00			P
7440-36-0	Antimony	18.60	U		P
7440-38-2	Arsenic	8.90	~~B~~	J	F
7440-39-3	Barium	4260.00			P
7440-41-7	Beryllium	1.70	B		P
7440-43-9	Cadmium	28.50			P
7440-70-2	Calcium	14400.00			P
7440-47-3	Chromium	2510.00			P
7440-48-4	Cobalt	19.60	B		P
7440-50-8	Copper	627.00			P
7439-89-6	Iron	18800.00			P
7439-92-1	Lead	499.00		J	P
7439-95-4	Magnesium	3000.00	B		P
7439-96-5	Manganese	113.00			P
7439-97-6	Mercury	37.00		J	CV
7440-02-0	Nickel	51.20			P
7440-09-7	Potassium	1060.00	B		P
7782-49-2	Selenium	4.00	U		F
7440-22-4	Silver	107.00		J	P
7440-23-5	Sodium	888.00	~~B~~	J	P
7440-28-0	Thallium	5.40	~~B~~	W J	F
7440-62-2	Vanadium	43.40	~~B~~	J	P
7440-66-6	Zinc	6160.00			P
	Cyanide				NR

JJ for TW 4/4/92

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

9613491.2796

OSM INORGANIC DATA ASSESSMENT

DATE 3-5-92

SAMPLES/MATRIX B00ZM6 B00ZM7 BOTH SOILS

REVIEWED BY Ted Washington (TW) 3-6-92

LABORATORY TMA

CASE # 100-HR-1

SDG # B00ZM6

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CN
1. Calibrations (Form II)	O	O	O	
2. Blanks (III)	O	O	O	
3. ICS (IV)	O			
4. Matrix Spike (V)	O	O	O	
5. Duplicate Analysis (VI)	O	O	O	
6. LCS (VII)	O	O		
7. Serial Dilution (IX)	X			
8. GFAA		X		
9. Holding Times (XIV)	O	O	X	
10. Other QC	O	O	O	

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT: Data package acceptable with attached qualifiers.

NOTES: HEIS #'s located in upper right hand corner of Form I's.

o Refer to the corresponding attachments for explanation of any problems.

9613491.2797

INORGANIC QC - Calibrations

Name Ted Washington 3-6-92 Date 3-5-92

COMMENTS: ALL INSTRUMENTS (ICP, AA, CV) WERE CALIBRATED AND ALL INITIAL AND CONTINUING CALIBRATION REQUIREMENTS WERE MET.

ACTION: NONE - NO ACTIONS REQUIRED.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Blanks

Name Ted Washington 3-6-92 Date 3-5-92

COMMENTS: ALL REQUIREMENTS WERE MET IN BLANKS. THERE WERE NO CONTAMINANTS ~~>IDL <5~~ IN ICP, CV OR AA IN WHICH SAMPLE RESULTS >IDL <5 X VOLUME IN ANY BLANK. SAMPLE B00M26 WAS USED FORR THE ANALYSIS.

ACTION: none - no ACTIONS required.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - ICS

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: THE MINIMUM NUMBER OF ICS WERE RUN AND AT THE PROPER TIME. ALL RESULTS WERE WITHIN CONTROL LIMITS OF ±20%. ALL REQUIREMENTS WERE MET. SAMPLE B002M6 WAS USED FOR ICP ICS.

ACTION: NONE - NO ACTIONS REQUIRED.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Matrix Spike

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: ALL MATRIX SPIKE REQUIREMENT MET FOR ICP, AA, and CV. SAMPLE B002M6S WAS USED FOR THE ANALYSIS.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Duplicate Analysis

Name Ted Washington (TAW 3-6-92) Date 3-5-92

COMMENTS: ALL Duplicate analysis requirements met for the soil analysis. Sample ~~[illegible]~~ B002M6D was used for the analysis.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - LCS

Name Ted Washington TKW 3-6-92 Date 3-5-92

COMMENTS: ALL SAMPLES WERE TESTED AS SOLIDS AND THEY WERE ALL WITHIN CONTROL LIMITS. SAMPLE B00ZM6 WAS USED FOR THE LABORATORY CONTROL SAMPLE.

ACTION: NONE - NO ACTIONS REQUIRED.

sample #	constituent	value/qual	sample #	constituent	value/qual

INORGANIC QC - Serial Dilution

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: THERE WERE FOUR ANALYTES OUT OF CONTROL, ALL OTHER WERE ACCEPTABLE. SAMPLE B002M6L WAS USED FOR THE SERIAL DILUTION ANALYSIS.

ACTION: QUALIFIED ALL OUT OF CONTROL ANALYTES AND AFFECTED SAMPLES (UJ OR J) ESTIMATED AS PER OSM PROTOCOLS.

sample #	constituent	value/qual
BOTH SAMPLES	LEAD	J
	SILVER	
	SODIUM	
	VANADIUM	

sample #	constituent	value/qual

INORGANIC QC - Holding Times

Name Ted WASHINGTON TW 3-6-92 Date 3-5-92

COMMENTS: Holding Time requirements were with all metals except mercury. Mercury has a 28 day holding period allowed, but it was held for 36 days.

ACTION: Qualified out of control analytes and affected samples (UJ or J) estimated as per OSM protocols.

sample #	constituent	value/qual
BOTH samples	MERCURY	J

sample #	constituent	value/qual

INORGANIC QC - GFAA

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: THERE WERE TWO ANALYTES (ARSENIC AND THALLIUM) OUT OF CONTROL IN THE GFAA ANALYSIS. ~~ALL OTHER~~ ARSENIC HAD A (%R) RECOVERY TOO LOW (77%) AND THALLIUM WAS TOO HIGH (116.2%), THE LIMITS WERE (85-115%).

ACTION: QUALIFIED ALL OUT OF CONTROL ANALYTES AND AFFECTED SAMPLES (UJ OR J) ESTIMATED AS PER OSM PROTOCOLS.

sample #	constituent	value/qual
~~B00M~~		
B002M7	ARSENIC	J
⊥	THALLIUM	⊥

sample #	constituent	value/qual

INORGANIC QC - other

Name Ted Washington TW 3-6-92 Date 3-5-92

COMMENTS: Acceptable with attached qualifiers.

ACTION: none - no actions required.

sample #	constituent	value/qual	sample #	constituent	value/qual

Federal Express 2914302705

August 13, 1991

TMA/ARLI
160 Taylor Street
Monrovia, CA 91016

Attention: Dennis Wells

Quality Control Narrative

Scope

Two (2) soil samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on July 5, 1991. The samples were analyzed for the USEPA CLP metals. The analysis was performed under Skinner and Sherman work order 9107047.

Methodology

The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work 7/88 (CLP SOW788).

Discussion

All quality control requirements were met for these samples.

Please feel free to call if there are any questions concerning the data package.

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

Richard Purdy
Contract Laboratory Program
Program Manager

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is sa
Expert witness services shall be available in conjunction with this report only if prior notification of this potential requirement was made and accepted, before the analysis.
will be responsible for Skinner & Sherman costs and consulting fees if our services are required by subpoena or otherwise in legal proceedings. Total liability is limited to the
amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, I
exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are
thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.
300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-720
1-800-4 LAB TEST FAX (617) 890-3883

9613491.2808

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B00ZM6

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-01S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 10.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600.00			P
7440-36-0	Antimony	30.30	U		P
7440-38-2	Arsenic	24.10			F
7440-39-3	Barium	1930.00			P
7440-41-7	Beryllium	1.80	U		P
7440-43-9	Cadmium	22.50			P
7440-70-2	Calcium	12200.00			P
7440-47-3	Chromium	1020.00			P
7440-48-4	Cobalt	16.60	B		P
7440-50-8	Copper	534.00			P
7439-89-6	Iron	29400.00			P
7439-92-1	Lead	419.00		J	P
7439-95-4	Magnesium	2940.00	B		P
7439-96-5	Manganese	158.00			P
7439-97-6	Mercury	34.10		J	CV
7440-02-0	Nickel	56.40	B		P
7440-09-7	Potassium	1030.00	B		P
7782-49-2	Selenium	7.80	U	W	F
7440-22-4	Silver	119.00		J	P
7440-23-5	Sodium	727.00	~~B~~	J	P
7440-28-0	Thallium	3.50	B		F
7440-62-2	Vanadium	47.00	~~B~~	J	P
7440-66-6	Zinc	4080.00			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

9613491.2809

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

800ZM7

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: 800ZM6

Matrix (soil/water): SOIL Lab Sample ID: 07047-02S

Level (low/med): LOW Date Received: 07/05/91

% Solids: 17.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13600.00			P
7440-36-0	Antimony	18.60	U		P
7440-38-2	Arsenic	8.90	B		F
7440-39-3	Barium	4260.00			P
7440-41-7	Beryllium	1.70	B		P
7440-43-9	Cadmium	28.50			P
7440-70-2	Calcium	14400.00			P
7440-47-3	Chromium	2510.00			P
7440-48-4	Cobalt	19.60	B		P
7440-50-8	Copper	627.00			P
7439-89-6	Iron	18800.00			P
7439-92-1	Lead	499.00		J	P
7439-95-4	Magnesium	3000.00	B		P
7439-96-5	Manganese	113.00			P
7439-97-6	Mercury	37.00		J	CV
7440-02-0	Nickel	51.20			P
7440-09-7	Potassium	1060.00	B		P
7782-49-2	Selenium	4.00	U		F
7440-22-4	Silver	107.00		J	P
7440-23-5	Sodium	888.00	~~B~~	J	P
7440-28-0	Thallium	5.40	B	W	F
7440-62-2	Vanadium	43.40	~~B~~	J	P
7440-66-6	Zinc	6160.00			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ROCKS

FORM I - IN

WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	-38.0	B	28.0	B	27.0	U	27.0	U	5.698	B	P
Antimony	17.0	U	17.0	U	24.0	B	17.0	U	3.400	U	P
Arsenic	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	0.400	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Cadmium	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Calcium	28.0	U	30.7	B	28.0	U	30.8	B	16.864	B	P
Chromium	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Cobalt	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	P
Copper	11.0	U	11.0	U	11.0	U	11.0	U	2.200	U	P
Iron	-21.6	B	18.0	U	18.0	U	18.0	U	3.600	U	P
Lead	20.0	U	20.0	U	20.0	U	20.0	U	4.000	U	P
Magnesium	33.0	U	33.0	U	33.0	U	33.0	U	6.600	U	P
Manganese	9.0	U	9.0	U	9.0	U	9.0	U	1.800	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U			CV
Nickel	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Potassium	251.0	U	251.0	U	251.0	U	251.0	U	50.200	U	P
Selenium	4.0	U	4.0	U	4.0	U	4.0	U	0.800	U	F
Silver	-6.6	B	-4.1	B	4.0	U	4.0	U	0.800	U	P
Sodium	30.0	U	30.0	U	30.0	U	30.0	U	10.434	B	P
Thallium	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	F
Vanadium	3.0	U	3.0	U	3.0	U	3.0	U	0.600	U	P
Zinc	8.0	U	8.0	U	8.0	U	8.0	U	1.600	U	P
Cyanide											NR

WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic			4.0	U	4.0	U	4.0	U			F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury			0.2	U					0.100	U	CV
Nickel											NR
Potassium											NR
Selenium			4.0	U	4.0	U	4.0	U			F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

WESTINGHOUSE/HANFORD

3
BLANKS

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Preparation Blank Matrix (soil/water):

Preparation Blank Concentration Units (ug/L or mg/kg):

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic			4.0	U							F
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium			4.0	U							F
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

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5A
SPIKE SAMPLE RECOVERY

SAMPLE NUMBER: B00ZM6S

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 10.2

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	829.2653		30.3030	U	916.25	90.5		P
Arsenic	75-125	80.9586		24.1441		72.62	78.2		F
Barium	75-125	5592.0845		1931.5506		3665.02	99.9		P
Beryllium	75-125	86.3661		1.7825	U	91.63	94.3		P
Cadmium	75-125	102.8771		22.5134		91.63	87.7		P
Calcium									NR
Chromium	75-125	1349.8811		1023.4758		366.50	89.1		P
Cobalt	75-125	859.1352		16.5597	B	916.25	92.0		P
Copper	75-125	1010.5554		533.5294		458.13	104.1		P
Iron									NR
Lead	75-125	1258.4756		419.1622		916.25	91.6		P
Magnesium									NR
Manganese	75-125	1067.8213		158.2709		916.25	99.3		P
Mercury		35.7143		34.0909		4.67	34.8		CV
Nickel	75-125	904.6730		56.4171	B	916.25	92.6		P
Potassium									NR
Selenium	75-125	19.3891		7.8431	U	18.16	106.8		F
Silver	75-125	206.9086		118.8235		91.63	96.1		P
Sodium									NR
Thallium	75-125	102.3856		3.5020	B	90.78	108.9		F
Vanadium	75-125	925.1055		46.9519	B	916.25	95.8		P
Zinc		4666.4842		4076.8267		916.25	64.4		P
Cyanide									NR

Comments:

WESTINGHOUSE/HANFORD

6
DUPLICATES

SAMPLE NUMBER:

B00ZM6D

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

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

% Solids for Sample: 10.2 % Solids for Duplicate: 9.9

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		11555.7920		11205.2310		3.1		P
Antimony		30.3030	U	60.8964	B	200.0		P
Arsenic	19.6	24.1441		38.6065		46.1		F
Barium		1931.5506		1971.6157		2.1		P
Beryllium		1.7825	U	1.8674	U			P
Cadmium	8.9	22.5134		20.9524		7.2		P
Calcium	8912.7	12210.3374		12323.8120		0.9		P
Chromium		1023.4758		1079.1225		5.3		P
Cobalt		16.5597	B	20.0187	B	18.9		P
Copper		533.5294		545.7144		2.3		P
Iron		29445.6296		30929.9781		4.9		P
Lead		419.1622		436.3960		4.0		P
Magnesium		2935.4721	B	2969.1883	B	1.1		P
Manganese		158.2709		160.4295		1.4		P
Mercury		34.0909		29.2075		15.4		CV
Nickel		56.4171	B	56.7134	B	0.5		P
Potassium		1028.3243	B	1169.6174	B	12.9		P
Selenium		7.8431	U	7.6147	U			F
Silver		118.8235		128.2727		7.6		P
Sodium		727.0231	B	676.0786	B	7.3		P
Thallium		3.5020	B	3.4009	B	2.9		F
Vanadium		46.9519	B	49.2624	B	4.8		P
Zinc		4076.8267		3972.1763		2.6		P
Cyanide								NR

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9

ICP SERIAL DILUTIONS

SAMPLE NUMBER:

B00ZM6L

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	6482.80		6505.50		0.4		P
Antimony	17.00	U	85.00	U			P
Arsenic							NR
Barium	1083.60		1078.05		0.5		P
Beryllium	1.00	U	5.00	U			P
Cadmium	12.63		15.75	B	24.7		P
Calcium	6850.00		6918.00	B	1.0		P
Chromium	574.17		548.90		4.4		P
Cobalt	9.29	B	20.00	U	100.0		P
Copper	299.31		270.95		9.5		P
Iron	16519.00		16521.50		0.0		P
Lead	235.15		275.80		17.3		P
Magnesium	1646.80	B	1798.20	B	9.2		P
Manganese	88.79		87.70		1.2		P
Mercury							NR
Nickel	31.65	B	51.30	B	62.1		P
Potassium	576.89	B	1255.00	U	100.0		P
Selenium							NR
Silver	66.66		55.95		16.1		P
Sodium	407.86	B	483.15	B	18.5		P
Thallium							NR
Vanadium	26.34	B	30.40	B	15.4		P
Zinc	2287.10		2393.75		4.7		P

WESTINGHOUSE/HANFORD

10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

ICP ID Number: P1 Date: 07/15/91

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20		200	27.0	P
Antimony	206.80		60	17.0	P
Arsenic			10		
Barium	493.40		200	2.0	P
Beryllium	313.00		5	1.0	P
Cadmium	226.50		5	3.0	P
Calcium	317.90		5000	28.0	P
Chromium	267.70		10	7.0	P
Cobalt	228.60		50	4.0	P
Copper	324.70		25	11.0	P
Iron	259.90		100	18.0	P
Lead	220.30		3	20.0	P
Magnesium	279.00		5000	33.0	P
Manganese	257.60		15	9.0	P
Mercury			0.2		
Nickel	231.60		40	6.0	P
Potassium	766.40		5000	251.0	P
Selenium			5		
Silver	328.00		10	4.0	P
Sodium	588.90		5000	30.0	P
Thallium			10		
Vanadium	292.40		50	3.0	P
Zinc	213.80		20	8.0	P

Comments:

P1: THERMO JARRELL-ASH ICAP61 (#10782)

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10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

ICP ID Number: Date: 07/15/91

Flame AA ID Number:

Furnace AA ID Number: F1

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium	276.80	BS	10	1.0	F
Vanadium			50		
Zinc			20		

Comments:

F1: THERMO JARRELL-ASH VIDEO 22E (#2486)

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10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

ICP ID Number: Date: 07/15/91

Flame AA ID Number: M2

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury	253.60		0.2	0.2	CV
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments:

M2: SPECTRO PRODUCTS HG-4 (#4707)

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10

Instrument Detection Limits (Quarterly)

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: N106252 SAS No.: SDG No.: B00ZM6

ICP ID Number: Date: 07/15/91

Flame AA ID Number:

Furnace AA ID Number: F4

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic	197.20	BS	10	4.0	F
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium			10		
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium	196.00	BS	5	4.0	F
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments:

F4: THERMO JARRELL-ASH VIDEO 22E (#2664)

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TMA/SKINNER & SHERMAN LABS SAMPLE LOG-IN

CLIENT HANFORD-ARLI

S&S WORKORDER 9107047

PROTOCOL: CLP

No. OF SAMPLES: 2 (Soil) ___ (Water) ___ (Specify) ___ (Oil) ___ (Sludge) ___ (Drinking ___

TURNAROUND: 33 DAYS

CUSTODIAN: A. Benney

SDG/Batch# N/A

COOLER TEMP: 4 oC or NA

CUSTODY SEAL - ~~PRESENT~~/ABSENT INTACT/NOT

CLIENT CASE# N106252

PO/CONTRACT# NA

TAGS: PRESENT/ABSENT/NA/SEE COC

CONTACT DeNNIS Wells

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, #

COMMENTS:

AIRBILL # 915087 0923 TRANSPORTER: FEDEX HAND DEL ___

SAMPLE CONTAINERS-INTACT/BROKEN (COMMENTS)

CLIENT COMMENTS? YES / NO

SAMPLE LABELS AGREE WITH CHAIN OF CUSTODY INFO? YES/NO (COMMENT)

CLIENT PAPERWORK AGREES WITH SAMPLES & COC? YES /NO (COMMENT)

	CLIENT ID	MATRIX	RECEIVED	QC	TEST(S)	HOLD TIME DATE/ TES
1	B007M6	soil	07/05/91	DS	Total metals	
2	↓ 7	↓	↓			
3						
4						
5						
6						
7						
8						
9						
10						
11						
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22						
23						
24						
25						
26						
27						

COMMENTS:

SUBCONTRACT: YES NO, TO: DATE: 07/05

Rev. 1.3

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Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector CE Helden and JG Lucas Date Sampled 6-25-91 Time 11:50, 12:15 hours

Company Contact Ron Mitchell Telephone (509) 376-5122

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B00ZM6	3 glass 120ml, 1 glass	6-27-91 stud sludge	VOA – (2) 120 ml glass
B00ZM7	250ml, and 2 plastic	sludge	Target Analyte Metals – (1) glass 250ml
	250 ml		Nitrite / Nitrate, Sulfate, pH, Specific Conductance – (1) glass 120ml
			Gross Alpha, Gross Beta, Carbon-14, Uranium-235/238, Pu 238/239, Pu 240, Pu 241, Tritium – (1) plastic 250 ml
		(1) plastic 250 ml	Nickel-63, Ru-106, Cs-134, Eu-152/154/155, Am-241, Cd-113, Nb-94, Se-79, Pd-107, Zr-93, Co-60, Sr-90, Tc-99, Cs-137

Field Information** On total activity data sheets sample # B00ZM1 is B00ZM6 and B00ZM2 is now B00ZM7. 6-27-91

Special Handling and/or Storage —

Possible Sample Hazards —

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 6/28/91

Analysis Required

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

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A-6000-406 (05/