START 9713505.1758

0045803

TMA

OCT 1992
RECEIVED
OSM DMO

WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

ORGANICS & GENERAL CHEMISTRY
Case No. 08-014
(TMA/ARLI Work Order # A2-08-014)

METALS
Case No. N2-08-029
(TMA/Skinner & Sherman W.O. # S2-08-079 & S2-08-080)

October 22, 1992

NOV 1996
RECEIVED
EDMC

TMA Master Work Order N2-08-029

RECORD COPY

7/11/96 Kdb

DMC

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-92-00164
Record of Disposition No.

DATE: September 28, 1992	LABORATORY: TMA
PROJECT TITLE/NO.: 1607-H4 Septic System/92-253	NCR NO.:

SAMPLE IDENTIFICATION NUMBERS:

- B07208

DESCRIPTION OF EVENT:

▸▸ The sample bottle lid was broken in transit to the TMA Laboratory. *(There was sufficient volume remaining to perform the analysis.)*

◇◇ The affected analysis includes:
-- Gross alpha, Gross beta, Gamma spec. to include

^{235}U, ^{238}U, ^{239}Pu, ^{240}Pu
^{241}Am, ^{90}Sr, ^{14}C

DISPOSITION OF SAMPLES:

▸▸ With concurrence of Steve Vukelich, all affected analysis was continued.

APPROVAL SIGNATURES:

K. N. Pool — 9/28/92
OSM Project Coordinator (Print/Sign Name) — Date

S. E. Vukelich — 9/30/92
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

9713505.1760

Westinghouse Hanford Company	CHAIN OF CUSTODY	002752

Custody Form Initiator J.E.Darling

Company Contact Mike Stankovich / Joan Kessner Telephone (509) 373-3507

Project Designation/Sampling Locations 1607-H4 Septic System Collection Date 08/03/92

SAF # 92-253 100 H Area

Ice Chest No. Field Logbook No. WHC-N-205-19

Bill of Lading/Airbill No. 2509869692 Offsite Property No.

Method of Shipment Air Express

Shipped to TMA Labs

Possible Sample Hazards/Remarks Unknown at time of sampling

Sample Identification

B07206	(1)	125ml G	* B07208	(1)	1000ml G
B07206	(1)	500ml aG	B07209	(3)	125ml G
B07206	(1)	500ml aG	B07211	(1)	125ml G
B07206	(1)	250ml aG	B07211	(1)	500ml aG
B07206	(1)	1000ml G	B07211	(1)	500ml aG
B07208	(1)	125ml G	B07211	(1)	250ml aG
B07208	(1)	500ml aG	B07211	(1)	1000ml G
B07208	(1)	500ml aG			
B07208	(1)	250ml Ag			

☐ Field Transfer of Custody **CHAIN OF POSSESSION** (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
J.E. Darling J.E. DARLING	ELBY YAMAMOTO elby yamamoto	8/5/92 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

46

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

* B07208 (1000 ML G) LID BROKEN UPON RECIEPT.

A-6000-407 (12/90)

9713505.1761

TMA Labs C. of C. 002752

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector J.E.Darling Date 08/03/92

Company Contact Mike Stankovich / Joan Kessner Telephone (509) 373-3507

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
✓ B07206	S	08/03/92	1200	125ml G VOA
✓ B07206	S	08/03/92	1205	500ml aG SEMI VOA / PCB's/PEST.
✓ B07206	S	08/03/92	1218	500ml aG Anions (IC) NO^3-NO^2 pH SO_4 F
✓ B07206	S	08/03/92	1215	250ml aG ICP/AA METALS Hg CN
✓ B07206	S	08/03/92	1225	1000ml G GROSS ALPHA, GROSS BETA, GAMMA SPEC
				To include: U235, U238, Pu239, Pu240, Am241,
				Sr-90, C-14
✓ B07208	S	08/03/92	1200	125ml G VOA
✓ B07208	S	08/03/92	1222	500ml aG SEMI VOA / PCB's / PEST.
✓ B07208	S	08/03/92	1205	500ml aG Anions (IC) NO^3-NO^2 pH SO_4 F
✓ B07208	S	08/03/92	1117	250ml aG ICP/AA METALS Hg CN
* B07208	S	08/03/92	1235	1000ml G GROSS ALPHA, GROSS BETA, GAMMA SPEC
				To include: U235, U238, Pu239, Pu240, Am241,
				Sr-90, C-14
✓ B07209	S	08/03/92	0700	(3) 125mlG VOA
✓ B07211	S	08/03/92	1343	125ml G VOA
✓ B07211	S	08/03/92	1349	500ml aG SEMI VOA /PCB's / PEST.
✓ B07211	S	08/03/92	1345	500ml aG Anions (IC) NO^3-NO^2 pH SO_4 F
✓ B07211	S	08/03/92	1354	250ml aG ICP/AA METALS Hg CN
✓ B07211	S	08/03/92	1356	1000ml G GROSS ALPHA, GROSS BETA, GAMMA SPEC
				To include: U235, U238, Pu239, Pu240, Am241,
				Sr-90, C-14

*Type of Sample

A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
DS = Drum Solids	*S = Soil	SO = Solid	WI = Wipe	

Field Information UNKNOWN POSSIBLE SAMPLE HAZARDS AT TIME OF SAMPLING

Special Handling and/or Storage Store at 4°C

Possible Sample Hazards UNKNOWN

47

A-6000-406 (06/91)

9713505.1762

000004

SAMPLE LOG-IN SHEET

LAB NAME : TMA/ARLI

PAGE : 1 OF 1.

RECEIVED BY (PRINT NAME): CAROLE HARRIS

LOG-IN-DATE : 8/6/98

RECEIVED BY (SIGNATURE): Carole Harris

CASE NUMBER:
SAMPLE DELIVERY GROUP NO.:
SAS NUMBER:

REMARKS:

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos:
3. Chain of Custody Records Present/Absent*
4. Traffic Reports or Packing List Present/Absent*
5. Airbill Airbill/Sticker Present/Absent*
6. Airbill No.: 2521031936
7. Sample Tags Present/Absent*
8. Sample Tags Numbers Listed/Not Listed on Chain of Custody
9. Sample Condition: Intact/Broken*/Leaking
10. Does information on custody records, traffic reports, and sample tags agree Yes/No*
11. Date Recieved at Lab: 8/6/98
12. Temp of ice chest 4.0 °C
13. Time Recieved: 9:00 AM

SAMPLE TRANSFER

Fraction:
Area #:
By:
On:

EPA SAMPLE #	CORRESPONDING SAMPLE TAG #	CORRESPONDING ASSIGNED LAB #	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC
	B072006	AD-08-014-01	
	B072008	AD-08-014-02	
	B072009	AD-08-014-03	
	B072011	AD-08-014-04	

* Contact SMO and attach record of resolution

Reviewed By: Logbook No.:

Date: Logbook Page No.:

FORM DC-1

TMA/ARLI
Thermo Analytical Inc.

RADIATION DOSE RATE SURVEY FORM

Date 8/06/92 COMPANY NERAL (WHC) OTHER ORD # 252103936

Surveyor's Name MARK S. McCRAY

Model No. HP-210 / ESP-1 Model No. AC-3-7 / ESP-1

Serial Nos. 710289 / 02619 Serial Nos. 407726 / 02628

Calibration Date 3/25/92 Calibration Date OUT FOR CALIBRATION

Instrument Calibration Factor 0.280 Instrument Calibration Factor

Sample	Location	HP-210 CPM	HP-210 Factor	HP-210 DPM	AC-3-7 CPM	AC-3-7 Factor	AC-3-7 DPM	Spillage or Breakage?	Activity, pCi/mL or pCi/g
Background		34.0							
Consistency		7,390	0.2853						
Smears: GS 24		36.0						NONE	
SML77		36.0						NONE	
CURLY		31.0						NONE	
BUD		47.0						NONE	
SML111		29.0						NONE	
JUN6		51.0						NONE	
REPORTED 4 sq. each <50 pCi/gram									

Comments:

All OK ✓ Approved [illegible]

Not OK Date 8/06/92

9713505.1764

000006

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 2521031936

2521031936

RECIPIENT'S COPY

1 Date 8 5 92

From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very Important): (213)235-2333

Company: T M A INDUSTRIAL

Department/Floor No

Street Address: [illegible] AVE

City: [illegible] State: CA ZIP Required: 9 4 8 0 4

2 To (Recipient's Name) Please Print: SAMPLE CONTROL ( )

Recipient's Phone Number (Very Important)

Company: TMA / ARC

Department/Floor No

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 160 TAYLOR STREET

City: MONROVIA State: CA ZIP Required: 91016

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320 6406

H IF HOLD FOR PICK-UP, Print FEDEX Address Here

Street Address

City State ZIP Required

3 PAYMENT 1 [x] Bill Sender 2 [ ] Bill Recipient's FedEx Acct No 3 [ ] Bill 3rd Party FedEx Acct No 4 [ ] Bill Credit Card

[ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight
- 11 [x] YOUR PACKAGING
- 16 [ ] FEDEX LETTER *
- 12 [ ] FEDEX PAK *
- 13 [ ] FEDEX BOX
- 14 [ ] FEDEX TUBE

Standard Overnight
- 51 [ ] YOUR PACKAGING
- 56 [ ] FEDEX LETTER *
- 52 [ ] FEDEX PAK *
- 53 [ ] FEDEX BOX
- 54 [ ] FEDEX TUBE

Economy Two-Day
- 30 [ ] ECONOMY

Government Overnight
- 46 [ ] GOVT LETTER
- 41 [ ] GOVT PACKAGE

Freight Service
- 70 [ ] OVERNIGHT FREIGHT **
- 80 [ ] TWO-DAY FREIGHT **

† Delivery commitment may be later in some areas
*Declared value limit $100
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)

- 1 [ ] HOLD FOR PICK-UP
- 2 [x] DELIVER WEEKDAY
- 3 DELIVER SATURDAY (Extra charge) [ ]
- 4 DANGEROUS GOODS (Extra charge)
- 5 [ ]
- 6 [ ] DRY ICE
- 7 [ ] OTHER SPECIAL SERVICE
- 8 [ ]
- 9 [ ] SATURDAY PICK-UP (Extra charge)
- 10 [ ]
- 11 [ ]
- 12 [ ] HOLIDAY DELIVERY (Extra charge)

6 PACKAGES | WEIGHT (In Pounds Only) | YOUR DECLARED VALUE

Total Total Total

6 469

DIM SHIPMENT (Chargeable Weight) [ ] _____ lbs

L x W x H = _____

Received At: 1 [x] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] BSC 5 [ ] Station

Emp. No. Date

[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Dal [ ] Chg. To Hold

Street Address

City State Zip

Received By: X

Date/Time Received FedEx Employee Number

7 Release Signature:

FedEx Emp. No Date/Time

Federal Express Use

Base Charges

Declared Value Charge

Other 1

Other 2

Total Charges

REVISION DATE 6/91
PART #137204 FXEM 4/92
FORMAT #088

099

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GENERAL CHEMISTRY RESULTS

CASE NO. 08-014

Soil Sample #:

B07206 B07208 B07211

CASE NARRATIVE

The % RPD for the Fluoride analysis reported for the soil sample B07211 (A2-08-014-04) was 28.6%. The results for the sample and duplicate were near the instrument detection limit. These results are acceptable based on the level of Fluoride concentration.

No other problems were encountered during sample analysis. All QC results were acceptable.

Ernesto Vazquez

Ernesto Vazquez

Received: 08/05/92 9713505.1766 IMA Inc. REPORT Results by Sample Work Order # A2-08-014

000010

SAMPLE ID B07206 FRACTION 01E TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 08/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Fluoride	300.0	2	mg/Kg	1.
pH	9045	5.5	pH	.1
Sulfide	376.1	40	mg/Kg	10.

FORM I

Received: 08/05/92 9713505.1767 TMA Inc. REPORT Results by Sample

Work Order # A2-08-014

000011

SAMPLE ID B07208 FRACTION 02E TEST CODE WCCLPS NAME Anions in Solids - WM232

Date & Time Collected 08/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Fluoride	300.0	<1	mg/Kg	1.
pH	9045	7.1	pH	.1
Sulfate	300.0	46	mg/Kg	10.

FORM I

Received: 08/05/92 9713505.1788 TMA Inc. REPORT Work Order # A2-08-014

Results by Sample 000012

SAMPLE ID B07211 FRACTION 04C TEST CODE WCCLPS NAME Anions In Solids - WH232

Date & Time Collected 08/03/92 Category

ANIONS AND WET CHEMISTRY - SOLIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Fluoride	300.0	3	mg/Kg	1.
pH	9045	6.5	pH	.1
Sulfate	300.0	544	mg/Kg	10.

FORM I

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 08-014

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : August 5, 1992

1.0 DESCRIPTION OF CASE :

Four soil samples were analyzed for TCL Organics-Volatiles, Semivolatiles and Pesticide/PCBs according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8.

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B07206	A2-08-014-01A	V	SOIL
B07206	A2-08-014-01B	SV & P	SOIL
B07206 MS	A2-08-014-01C	SV	SOIL
B07206 MSD	A2-08-014-01D	SV	SOIL
B07208	A2-08-014-02A	V	SOIL
B07208	A2-08-014-02B	SV & P	SOIL
B07208 MS	A2-08-014-02C	P	SOIL
B07208 MSD	A2-08-014-02D	P	SOIL
B07209	A2-08-014-03A	V	SOIL
B07209 MS	A2-08-014-03B	V	SOIL
B07209 MSD	A2-08-014-03C	V	SOIL
B07211	A2-08-014-04A	V	SOIL
B07211	A2-08-014-04B	SV & P	SOIL
B07211 DL	A2-08-014-04B	P	SOIL

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

The samples were received unbroken and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times. The Bromofluorobenzene surrogate recoveries for B07209MS and B07209MSD were slightly above the QC limits. In accordance with protocol, no further action was required.

All of the other QC results were within the limits specified by the EPA CLP SOW.

TUNES :

All of the BFB tunes are injected directly into the GC/MS instrument.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times. Due to the dark coloration of the extract, a 1 to 2 dilution was performed on sample B07211 and analyzed. Polynuclear Aromatic Hydrocarbons were detected in the sample at concentrations within the GCMS calibration range.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.3 PESTICIDE/PCB ANALYSIS COMMENTS :

SEQUENCE NOTES :

The sequence was started on 9/3/92 and was analyzed in accordance with the EPA CLP SOW. The sequence was analyzed by single injection into a dual column system. After the sample injection at 19:15 on 9/9/92, the auto sampler malfunctioned. After maintenance was performed, the sequence was continued with the next injection of PIBLK06 at 8:07 on 9/10/92. Since the injection of PIBLK06 was outside of the 12 hour window, the samples injected between PIBLK05 and PIBLK06 were re-injected in another sequence. PIBLK06 failed to meet the TCX retention time window by 0.005 minutes. However, the next injection met the QC limit and the sequence was continued. The sequence met all of the QC requirements specified in the CLP SOW.

The Chromatograms are presented in the manner consistent with the capabilities of the Nelson 2600 Data System which normalizes the largest peak to scale.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the CLP SOW holding times. Sample B07208 and PBLK0810S had TCX surrogate recoveries slightly below the advisory QC limits on the DB-1701 column. In accordance with protocol, no further action was required.

Sample B07208MS had a percent difference (%D) between the two GC columns that exceeded the advisory 25% limit for Endrin. Therefore, a "P" qualifier was reported on Form 1D.

Sample B07211 contained TCL analytes - 4,4'-DDE, 4,4'-DDD and gamma-Chlordane at concentrations that required a 1:5 dilution for better quantitation. These analytes could not be confirmed by GCMS since the detected concentrations were below the GCMS detection limits. Samples B07211 and B07211DL, on the DB-608 column, had DCB surrogate recoveries above the advisory QC limits. Also, their quantitation percent differences between the DB-608 column and the DB-1701 column were greater than the 25% advisory limit. The higher DCB surrogate recoveries on the DB-608 columns appears to be due to the co-elution of interference peaks with DCB. In accordance with protocol, no further action was required.

All of the other QC results were within the limits specified by the EPA CLP SOW.

We 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 hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designee, as verified by the following signatures.

Nicole Roth
CLP Program Manager

Widayati
Wida Ang
Organics Supervisor

9713505.1773

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

000006
EPA SAMPLE NO.

B07206

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20811R12

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

% Moisture: not dec. 1 Date Analyzed: 08/11/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	24	B
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

9713505.1774

1E

000007

EPA SAMPLE NO.

B07206

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20811R12

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

% Moisture: not dec. 1 Date Analyzed: 08/11/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9713505.1775

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

000008
EPA SAMPLE NO.

B07208

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20812R09

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

% Moisture: not dec. 1 Date Analyzed: 08/12/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	17	
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000009
EPA SAMPLE NO.

B07208

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20812R09

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

% Moisture: not dec. 1 Date Analyzed: 08/12/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9713505.1777

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

000010
EPA SAMPLE NO.

B07209

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20811R15

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

% Moisture: not dec. 0 Date Analyzed: 08/11/92

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

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	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	21	B
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

000011
EPA SAMPLE NO.

B07209

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20811R15

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

% Moisture: not dec. 0 Date Analyzed: 08/11/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9713505.1779

000012

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

B07211

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20811R14

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

% Moisture: not dec. 4 Date Analyzed: 08/11/92

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

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B07211

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20811R14

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

% Moisture: not dec. 4 Date Analyzed: 08/11/92

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

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000014
EPA SAMPLE NO.

B07206

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-01B

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 20814S12

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

% Moisture: 1 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/14/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	790	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	790	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	790	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	790	U

EPA SAMPLE NO. 000015

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07206

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-01B

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 20814S12

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

% Moisture: 1 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/14/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	790	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	790	U
534-52-1	4,6-Dinitro-2-methylphenol	790	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	790	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
218-01-9	Chrysene	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

9713505.1783

1F

000016

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07206

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-01B

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 20814S12

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

% Moisture: 1 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/14/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.5

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	PROPANOIC ACID ISOMER	5.10	590	J
2.	UNKNOWN HYDROCARBON	5.33	1600	BJ
3.	UNKNOWN HYDROCARBON	5.75	46000	BJ
4.	UNKNOWN HYDROCARBON	5.85	66	BJ
5.	UNKNOWN HYDROCARBON	6.72	200	BJ
6.	UNKNOWN HYDROCARBON	6.80	330	BJ
7.	UNKNOWN HYDROCARBON	7.23	560	BJ
8.	UNKNOWN ALCOHOL	8.45	530	BJ
9.	UNKNOWN HYDROCARBON	17.18	99	J

9713505.1784

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000017
EPA SAMPLE NO.

B07208

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-02B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20814S15

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

% Moisture: 1 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/14/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	800	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	800	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	800	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	800	U

9713505.1785

000018

EPA SAMPLE NO.

B07208

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-02B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20814S15

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

% Moisture: 1 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/14/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	800	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	800	U
534-52-1	4,6-Dinitro-2-methylphenol	800	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	800	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
218-01-9	Chrysene	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

(1) - Cannot be separated from Diphenylamine

9713505.1786

1F

Q00019

EPA SAMPLE NO.

B07208

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-02B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20814S15

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

% Moisture: 1 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/14/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.25	1300	BJ
2.	UNKNOWN HYDROCARBON	5.68	43000	BJ
3.	UNKNOWN HYDROCARBON	6.68	170	BJ
4.	UNKNOWN HYDROCARBON	6.80	66	BJ
5.	UNKNOWN HYDROCARBON	7.20	370	BJ
6.	UNKNOWN ALCOHOL	8.47	200	BJ
7.	PROPANOIC ACID ISOMER	17.15	100	J
8.	UNKNOWN CARBOXYLIC ACID ESTE	20.27	470	J
9.	HEXANEDIOIC ACID ISOMER	24.80	170	J

9713505.1787

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000020
EPA SAMPLE NO.

B07211

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20817S10

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

% Moisture: 4 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/17/92

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 6.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	680	U
111-44-4	bis(2-Chloroethyl)Ether	680	U
95-57-8	2-Chlorophenol	680	U
541-73-1	1,3-Dichlorobenzene	680	U
106-46-7	1,4-Dichlorobenzene	680	U
95-50-1	1,2-Dichlorobenzene	680	U
95-48-7	2-Methylphenol	680	U
108-60-1	2,2'-oxybis(1-Chloropropane)	680	U
106-44-5	4-Methylphenol	680	U
621-64-7	N-Nitroso-Di-n-Propylamine	680	U
67-72-1	Hexachloroethane	680	U
98-95-3	Nitrobenzene	680	U
78-59-1	Isophorone	680	U
88-75-5	2-Nitrophenol	680	U
105-67-9	2,4-Dimethylphenol	680	U
111-91-1	bis(2-Chloroethoxy)Methane	680	U
120-83-2	2,4-Dichlorophenol	680	U
120-82-1	1,2,4-Trichlorobenzene	680	U
91-20-3	Naphthalene	680	U
106-47-8	4-Chloroaniline	680	U
87-68-3	Hexachlorobutadiene	680	U
59-50-7	4-Chloro-3-Methylphenol	680	U
91-57-6	2-Methylnaphthalene	680	U
77-47-4	Hexachlorocyclopentadiene	680	U
88-06-2	2,4,6-Trichlorophenol	680	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	680	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	680	U
208-96-8	Acenaphthylene	680	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	130	J
51-28-5	2,4-Dinitrophenol	1600	U

9713505.1788

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

000021
EPA SAMPLE NO.

B07211

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20817S10

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

% Moisture: 4 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/17/92

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 6.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	680	U
121-14-2	2,4-Dinitrotoluene	680	U
606-20-2	2,6-Dinitrotoluene	680	U
84-66-2	Diethylphthalate	680	U
7005-72-3	4-Chlorophenyl-phenylether	680	U
86-73-7	Fluorene	110	J
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	680	U
101-55-3	4-Bromophenyl-phenylether	680	U
118-74-1	Hexachlorobenzene	680	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	1600	
120-12-7	Anthracene	320	J
86-74-8	Carbazole	150	J
84-74-2	Di-n-Butylphthalate	680	U
206-44-0	Fluoranthene	2900	
129-00-0	Pyrene	2700	
85-68-7	Butylbenzylphthalate	680	U
91-94-1	3,3'-Dichlorobenzidine	680	U
56-55-3	Benzo(a)Anthracene	1800	
117-81-7	bis(2-Ethylhexyl)Phthalate	680	U
218-01-9	Chrysene	920	
117-84-0	Di-n-Octyl Phthalate	680	U
205-99-2	Benzo(b)Fluoranthene	2400	
207-08-9	Benzo(k)Fluoranthene	680	U
50-32-8	Benzo(a)Pyrene	940	
193-39-5	Indeno(1,2,3-cd)Pyrene	480	J
53-70-3	Dibenz(a,h)Anthracene	680	U
191-24-2	Benzo(g,h,i)Perylene	460	J

(1) - Cannot be separated from Diphenylamine

9713505.1789

1F

000022

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07211

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20817S10

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

% Moisture: 4 decanted: (Y/N) N Date Extracted: 08/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 08/17/92

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 6.5

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.18	750	BJ
2.	UNKNOWN HYDROCARBON	5.55	33000	BJ
3.	UNKNOWN HYDROCARBON	6.68	140	BJ
4.	UNKNOWN HYDROCARBON	7.05	210	BJ
5.	UNKNOWN HYDROCARBON	7.30	210	BJ
6.	UNKNOWN COMPOUND	8.93	690	J
7.	UNKNOWN CARBOXYLIC ACID ESTE	20.33	620	J
8.	UNKNOWN POLYNUCLEAR AROMATIC	21.22	750	J
9.	MEHTYL PYRENE ISOMER	23.92	890	J
10.	BENZO FLUORENE ISOMER	24.08	550	J
11.	UNKNOWN POLYNUCLEAR AROMATIC	24.15	270	J
12.	HEXANEDIOIC ACID ISOMER	24.90	750	J
13.	UNKNOWN POLYNUCLEAR AROMATIC	25.32	340	J
14.	UNKNOWN POLYNUCLEAR AROMATIC	25.38	820	J
15.	UNKNOWN POLYNUCLEAR AROMATIC	26.10	340	J
16.	UNKNOWN HYDROCARBON	27.10	750	J
17.	UNKNOWN HYDROCARBON	27.77	1800	J
18.	UNKNOWN HYDROCARBON	28.47	750	J
19.	UNKNOWN HYDROCARBON	28.70	1900	J
20.	UNKNOWN POLYNUCLEAR AROMATIC	28.93	2600	J

9713505.1790

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

Q00023

EPA SAMPLE NO.

B07206

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-01B

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

% Moisture: 1 decanted: (Y/N) N Date Received: 08/05/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/09/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	66	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Q00024

EPA SAMPLE NO.

B07208

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-02B

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 1 decanted: (Y/N) N Date Received: 08/05/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/09/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.2	U
72-55-9	4,4'-DDE	3.2	U
72-20-8	Endrin	3.2	U
33213-65-9	Endosulfan II	3.2	U
72-54-8	4,4'-DDD	3.2	U
1031-07-8	Endosulfan sulfate	3.2	U
50-29-3	4,4'-DDT	3.2	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.2	U
7421-36-3	Endrin aldehyde	3.2	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	32	U
11104-28-2	Aroclor-1221	66	U
11141-16-5	Aroclor-1232	32	U
53469-21-9	Aroclor-1242	32	U
12672-29-6	Aroclor-1248	32	U
11097-69-1	Aroclor-1254	32	U
11096-82-5	Aroclor-1260	32	U

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EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B07211

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04B

Sample wt/vol: 30.8 (g/mL) G Lab File ID:

% Moisture: 4 decanted: (Y/N) N Date Received: 08/05/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/09/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	12	
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	110	
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	18	
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	68	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U

9713505.1793

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

000026
EPA SAMPLE NO.

B07211DL

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 08014 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A208014-04BD

Sample wt/vol: 30.8 (g/mL) G Lab File ID: _____

% Moisture: 4 decanted: (Y/N) N Date Received: 08/05/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/10/92

Injection Volume: 1.00 (uL) Dilution Factor: 5.00

GPC Cleanup: (Y/N) Y pH: 6.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	8.6	U
319-85-7	beta-BHC	8.6	U
319-86-8	delta-BHC	8.6	U
58-89-9	gamma-BHC (Lindane)	8.6	U
76-44-8	Heptachlor	8.6	U
309-00-2	Aldrin	8.6	U
1024-57-3	Heptachlor epoxide	8.6	U
959-98-8	Endosulfan I	8.6	U
60-57-1	Dieldrin	17	U
72-55-9	4,4'-DDE	12	DJ
72-20-8	Endrin	17	U
33213-65-9	Endosulfan II	17	U
72-54-8	4,4'-DDD	97	D
1031-07-8	Endosulfan sulfate	17	U
50-29-3	4,4'-DDT	17	U
72-43-5	Methoxychlor	86	U
53494-70-5	Endrin ketone	17	U
7421-36-3	Endrin aldehyde	17	U
5103-71-9	alpha-Chlordane	8.6	U
5103-74-2	gamma-Chlordane	20	D
8001-35-2	Toxaphene	860	U
12674-11-2	Aroclor-1016	170	U
11104-28-2	Aroclor-1221	340	U
11141-16-5	Aroclor-1232	170	U
53469-21-9	Aroclor-1242	170	U
12672-29-6	Aroclor-1248	170	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

9713505.1794

 Skinner&Sherman REPORT Work Order # S2-08-080

Received: 08/06/92 09/28/92 10:28:18

REPORT TMA/NORCAL
TO 2030 Wright Avenue
Richmond, CA 94804

ATTEN Dan Steurmer

CLIENT HANFORD NOR SAMPLES 4
COMPANY TMA/NORCAL
FACILITY Richmond, CA

PREPARED TMA / Skinner & Sherman Labs.
BY 300 Second Avenue
P.O. Box 521
Waltham, MA 02254

ATTEN Client Services
PHONE (617) 890-7200

CERTIFIED BY

CONTACT DP

WORK ID N2-08-029
TAKEN BY CLIENT
TRANS FED EX# 2521031925
TYPE SOILS FOR NO3NO2
P.O. # N2-08-029
INVOICE under separate cover

SAMPLE IDENTIFICATION

01 B07206
02 B07208
03 B07211
03 B07211 DUPL
03 B07211 SPIKE
04 LCSS

TEST CODES and NAMES used on this workorder

NO3NO2 Nitrate Plus Nitrite

TMA
Thermo Analytical Inc.

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisfied. 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. Client 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 invoice amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. will exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held for thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

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

9713505.1795

 Skinner&Sherman REPORT Work Order # S2-08-080

Received: 08/06/92 Results by Sample

SAMPLE ID B07206 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 08/03/92 Category SOIL

NO3NO2 <2.50
mg N/kg

SAMPLE ID B07208 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 08/03/92 Category SOIL

NO3NO2 <2.44
mg N/kg

SAMPLE ID B07211 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 08/03/92 Category SOIL

NO3NO2 70.2
mg N/kg

SAMPLE ID B07211 DUPL SAMPLE # 03 FRACTIONS: B
Date & Time Collected 08/03/92 Category SOIL

NO3NO2 89.1
mg N/kg

SAMPLE ID B07211 SPIKE SAMPLE # 03 FRACTIONS: C
Date & Time Collected 08/03/92 Category SOIL

NO3NO2 89.2
mg N/kg

SAMPLE ID LCSS SAMPLE # 04 FRACTIONS: A
Date & Time Collected not specified Category SOIL

NO3NO2 1.91
mg N/L

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.

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300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

Received: 08/06/92 09/28/92 10:28:18

TMA/NORCAL

QUALITY CONTROL

MATRIX SPIKE

Sample ID	Sample Result	Spike Added	Spike Result	% Recovery
S208080-03	70.2 mg N/kg	21.3 mg N/kg	89.2 mg N/kg	89.2

DUPLICATE

Sample ID	Sample Result	Duplicate Result	Relative % Difference
S208080-03	70.2 mg N/kg	89.2 mg N/kg	23.8

QUALITY CONTROL SAMPLES

Sample ID	True Value	Found Value	% Recovery
LCS	2.00 mg/L	1.91 mg/L	95.5
Blank	--	<0.25 mg/L	--

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisfied. 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. Client 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 invoice amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. will exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held for 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

9713505.1797

 Skinner&Sherman REPORT Work Order # S2-08-080

Received: 08/06/92

Test Methodology

TEST CODE NO3NO2 NAME Nitrate Plus Nitrite

Methods for Chemical Analysis of Water and Wastes
EPA - 600/4-79-020 March 1979 Method 353.2 (modified)

TMA
Thermo Analytical Inc.
Skinner & Sherman Laboratories Inc.

This report is rendered upon all of the following conditions: Skinner & Sherman Laboratories, Inc. retains ownership of this report until associated submitted invoice is satisfied. 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. Client 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 invoice amount. The results listed refer only to tested samples and applicable parameters. Product endorsement is neither inferred nor implied. Skinner & Sherman Laboratories, Inc. will exercise due diligence but will not be responsible for lost or destroyed samples or evidence unless client makes appropriate insurance coverage arrangements. Samples are held for thirty days following issuance of report. Samples will be stored at client's expense, if authorized in writing.

300 Second Avenue, P.O. Box 521, Waltham, Massachusetts 02254-0521 (617) 890-7200
1-800-4 LAB TEST FAX (617) 890-3883

9713505.1798

TMA/Skinner & Sherman Labs SAMPLE LOG-IN

WORKORDER S208080 CLIENT Hanford Nor No. SAMPLES:

PROTCL CLP TURNARND 30 Days 3 (Soil) (Water) (Specify Othe

COOLER TEMP: 5 oC, or ~~NA~~ 8/6/92 BP

CUSTODIAN B. Prouix SDG/BATCH N/A

CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N208029

SHIPER & # Fed Ex 2521031925 PO/CONTRACT# ↓

TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO

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

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

SHIPMENT DATES 8/6/92

LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM:

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME
1	B07206	Soil	8/6/92	N/A	NO3, NO2	Due
2	208	↓	↓	↓	↓	
3	211	↓	↓	↓	D.S ↓	8-24-92
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

Samples are from site known to have Rad-Contamination: YES ✓ NO

Samples have detectable amounts of Radioactive Material: YES NO

SUBCONTRACT: YES/NO, TO: DATE: complete 8/7/92

REVIEWED BP

* EPA/CLP required Rev 1.6 PAGE: 27

TMA 9713505.1799
Thermo Analytical Inc.

Skinner & Sherman Labs., Inc.
300 Second Avenue
Post Office Box 521
Waltham, MA 02254-0521
(617) 890-7200
FAX (617) 890-3883

RECORD COPY

OCT 1992
RECEIVED
OSM DMO

October 16, 1992

TMA/NORCAL
2030 Wright Avenue
Richmond, CA 94804
Attention: Dan Stuermer

Quality Control Narrative

Scope
Three (3) soil samples were submitted to TMA/Skinner & Sherman Laboratories, Inc. on August 6,1992 from TMA/Norcal. The samples were analyzed for the USEPA CLP Target Analyte List metals and cyanide. The analysis were performed under TMA/Skinner and Sherman work order S208079.

Methodology
The samples were prepared, analyzed and reported in accordance with the USEPA Contract Laboratory Program Statement of Work ILM02.

Discussion
All quality control requirements were met for the samples with the following exceptions:

The antimony and selenium digestion spike recovery exceeded the control limit requirements.

The barium, copper, iron, lead, and mercury laboratory duplicates exceeded the control limit requirements.

The ICP serial dilution for copper and vanadium exceeded the control limit requirements.

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

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

7/11/96 KDB

9715505.1800

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07206

Lab Name: SKINNER & SHERMAN LABS Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-08-029SAS No.: SDG No.: B07206

Matrix (soil/water): SOIL Lab Sample ID: 08079-01S

Level (low/med): LOW Date Received: 08/06/92

% Solids: 99.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5240			P
7440-36-0	Antimony	3.2	U	N	P
7440-38-2	Arsenic	0.94	B		F
7440-39-3	Barium	27.3	B	*	P
7440-41-7	Beryllium	0.14	U		P
7440-43-9	Cadmium	0.29	U		P
7440-70-2	Calcium	2490			P
7440-47-3	Chromium	8.9			P
7440-48-4	Cobalt	6.9	B		P
7440-50-8	Copper	15.6		*E	P
7439-89-6	Iron	13800		*	P
7439-92-1	Lead	3.4		*	F
7439-95-4	Magnesium	3730			P
7439-96-5	Manganese	203			P
7439-97-6	Mercury	0.05	U	*	CV
7440-02-0	Nickel	8.4			P
7440-09-7	Potassium	605	B		P
7782-49-2	Selenium	0.70	U	WN	F
7440-22-4	Silver	0.94	U		P
7440-23-5	Sodium	139	B		P
7440-28-0	Thallium	0.30	U	W	F
7440-62-2	Vanadium	39.1		E	P
7440-66-6	Zinc	33.6			P
	Cyanide	0.50	U		CA

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

002

9715905.1801

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07208

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINNER Case No.: N2-08-0295AS No.: SDG No.: B07206

Matrix (soil water): SOIL Lab Sample ID: 38079-02S

Level (low/med): LOW Date Received: 08/06/92

% Solids: 99.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4950			P
7440-36-0	Antimony	3.2	U	N	P
7440-38-2	Arsenic	1.5	B		F
7440-39-3	Barium	27.6	B	*	P
7440-41-7	Beryllium	0.14	U		P
7440-43-9	Cadmium	0.29	U		P
7440-70-2	Calcium	2460			P
7440-47-3	Chromium	9.4			P
7440-48-4	Cobalt	6.5	B		P
7440-50-8	Copper	15.3		*E	P
7439-89-6	Iron	13200		*	P
7439-92-1	Lead	3.5		*	F
7439-95-4	Magnesium	3580			P
7439-96-5	Manganese	187			P
7439-97-6	Mercury	0.04	U	*	CV
7440-02-0	Nickel	8.3			P
7440-09-7	Potassium	546	B		P
7782-49-2	Selenium	0.76	U	WN	F
7440-22-4	Silver	0.93	U		P
7440-23-5	Sodium	118	B		P
7440-28-0	Thallium	0.32	U	W	F
7440-62-2	Vanadium	36.0		E	P
7440-66-6	Zinc	33.3			P
	Cyanide	0.49	U		CA

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

003

FORM I - IN ILM02.1

9714505.1802

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07211

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D0-0108

Lab Code: SKINER Case No.: N2-08-029SAS SAS No.: SDG No.: B07206

Matrix (soil/water): SOIL Lab Sample ID: 08079-03S

Level (low/med): LOW Date Received: 08/06/92

% Solids: 92.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8240			P
7440-36-0	Antimony	7.3	U	N	P
7440-38-2	Arsenic	7.8		S	F
7440-39-3	Barium	226		*	P
7440-41-7	Beryllium	0.18	B		P
7440-43-9	Cadmium	0.31	U		P
7440-70-2	Calcium	8310			P
7440-47-3	Chromium	19.8			P
7440-48-4	Cobalt	8.4	B		P
7440-50-8	Copper	40.2		E*	P
7439-89-6	Iron	19800		*	P
7439-92-1	Lead	50.0		*	F
7439-95-4	Magnesium	4440			P
7439-96-5	Manganese	315			P
7439-97-6	Mercury	0.50		*	CV
7440-02-0	Nickel	12.8			P
7440-09-7	Potassium	1050			P
7782-49-2	Selenium	0.80	U	WN	F
7440-22-4	Silver	0.98	U		P
7440-23-5	Sodium	252	B		P
7440-28-0	Thallium	0.34	U	W	F
7440-62-2	Vanadium	37.8		E	P
7440-66-6	Zinc	194			P
	Cyanide	0.52	U		CA

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts: YES

Comments:
ROOTS

004

9713505.1803

TMA/Skinner & Sherman Labs SAMPLE LOG-IN

WORKORDER 5208079 CLIENT Hanford Nor No. SAMPLES:

PROTCL CLP TURNARND 30 Days 3

COOLER TEMP: 5 oC, or NA (Soil) (Water) (Specify C

CUSTODIAN B. Proulx SDG/BATCH N/A

CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N208029

SHIPER & # Fed Ex 7521031925 PO/CONTRACT# ↓

TAGS: PRESENT/ABSENT/NA/SEE COC CONTACT D. Sanchez

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # N/A COMMENTS: none

SAMPLE CONTAINERS-INTACT/BROKEN COMMENTS

CLIENT COMMENT? YES/NO

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

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

SHIPMENT DATES 8-6-92

LIST ANY DATE WITH PAPERWORK/SHIPMENT PROBLEMS & SPECIFY THE PROBLEM

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIM
1	B07206	Soil	8/6/92	N/A	Tm/CN	
2	B07208	↓	↓	↓	↓	
3	B07211	↓	↓	↓	S.D ↓	
4						
5						
6						
7						
8						
9						
10						
11						
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13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

Samples are from site known to have Rad-Contamination: YES ✓ NO

Samples have detectable amounts of Radioactive Material: YES NO ✓

SUBCONTRACT: YES/NO TO: DATE:

REVIEWED complete 8/7/92 BP

* EPA/CLP required Rev 1.6 PAGE:

9/15/25, 1804

TMA
Thermo Analytical Inc.

TMA/Norcal
2331 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

JAN 1993
RECEIVED
OSM DMO

January 4, 1993

SENT BY FEDERAL EXPRESS

Ref. TMA/Norcal N2-08-061-7075

Mr. John Bourgeault
Westinghouse Hanford Company
2355 Stevens Drive
Richland, WA 99352

Dear Mr. Bourgeault:

Enclosed on the Summary Data Section, are the gross alpha, gross beta, ^{14}C, ^{90}Sr, isotopic uranium, isotopic plutonium, ^{241}Am, and gamma scan results for the soil samples from 100-H Area, 1607-H4 Septic System, we received 5 August 1992. The QA/QC results are also given in the Summary Data Section. The Summary Data Section is numbered pages 1 to 46, and the appendices are numbered pages 47 to 279.

Please call if you have any questions concerning this data.

Sincerely,

D. P. Kharkar

Dinkar P. Kharkar, Ph.D.
Manager, Nuclear Programs

DPK/ss

Enclosures: Section 1 through 12
Appendices

7/1/96 KDB

SDG 7075	Client Westinghouse Hanford
Contact Dinkar P. Kharkar	Contract MBH-SVV-069262

CASE NARRATIVE

1.0 GENERAL

Soil sample results from 100-H Area, 1607-H4 Septic System Location (TMA/Norcal Group 7075) are reported herein. TMA/Norcal Group 7075 is comprised of the three samples listed on the Chain-of-Custody documents and is identified as Samples 1, 2, and 3.

1.1 CHAINS-OF-CUSTODY

This report includes data from samples delivered under Chain-of-Custody documents Field Logbook No. WHC-N-205-19.

1.2 SAMPLE VOLUME

1000 mL bottles of samples were received for the analyses.

1.3 MISSING SAMPLES

All samples were accounted for in an undamaged condition.

1.4 HOLDING TIMES

Samples were collected on 8/03/92 and sample processing was initiated within 180 days of collection.

2.0 QUALITY CONTROL

The internal quality control consisted of one sample each of a laboratory control, a blank, and a replicate. All original analyses were performed with QC samples 7075-4 through 8.

The QC samples were prepared and labelled by the quality control officer. Copies of The QC notebook pages are included in the data package.

2.1 LABORATORY CONTROL SAMPLES

The LCS recoveries for all nuclides were good except for gross alpha and ^{14}C which were 72% and 59% respectively and did not pass the 3 σ total limits. We believe that the cause of the discrepancy in the gross alpha results was due to an insufficient amount of salt added to carry the activity. The procedure specified that an equivalent of 100 mg salt was to be added in case of low deposition weight sample. Only 50 mgm was added to the planchet. Observation revealed that a non-uniform deposition occurred. This is being tested by reworking the planchet to bring the deposition up to 100

SDG 7075	Client Westinghouse Hanford
Contact Dinkar P. Kharkar	Contract MBH-SVV-069262

CASE NARRATIVE

2.1 LABORATORY CONTROL SAMPLES (cont'd)

mgm. This will allow more uniform deposition and, therefore, a more reliable efficiency. This research will be completed by 8 January 1992 and retraining will follow, if necessary. The low recovery of ^{14}C in the laboratory control sample may be due to the fact that ^{14}C activity was pipetted onto the combustion pad, evaporated, and combusted in the oxidizer. Some of the activity might have been lost by evaporation before combustion resulting in low LCS recovery. The MDA's for all other nuclides were good and met the RDL requirements.

2.2 BLANKS

MDA's for all the analyses meet the RDL requirements. The ^{90}Sr error was underlined because the counting error was bigger than both the MDA and the result implying that the MDA may not be a good estimate of the "real" minimum detectable activity.

2.3 REPLICATES

Results were satisfactory for all replicate analyses. The ^{14}C result of the replicate was underlined because the negative result plus the associated error were still less than zero. The ^{90}Sr error was underlined because the counting error was bigger than both the MDA and the result, implying that the MDA may not be a good estimate of the "real" minimum detectable activity. The MDA's for gamma nuclides were higher than the RDL due to small aliquots available for gamma analysis. The MDA of ^{59}Fe for the original sample was higher than RDL due to the short half-life of ^{59}Fe.

3.0 ANALYTICAL NOTES

3.1 Gross Alpha Analyses: The average MDA for gross alpha was 5.3 ± 2.8 pCi/g. Positive gross alpha concentrations above RDL was not found in any sample.

3.2 Gross Beta Analyses: The average MDA for gross beta was 5.0 ± 1.4 pCi/g. Positive gross beta concentrations was found in all the samples.

3.3 Carbon-14 Analyses: The average MDA was 7.6 ± 3.9 pCi/g. All sample results were less than MDA. No positive ^{14}C was found in any of the samples.

SDG 7075	Client Westinghouse Hanford
Contact Dinkar P. Kharkar	Contract MBH-SVV-069262

CASE NARRATIVE

3.4 Strontium-90 Analyses: The average yield for six analyses was (77 ± 14%). The lowest yield was 67% and the highest was 84%. The average MDA was 0.75 ± 0.61 pCi/g. Positive ^{90}Sr concentration was not found in any of the samples. All sample results were below MDA. The MDA for 7075-3 was 1.1 pCi/g, of slightly higher than RDL due to the rounding off error.

3.5 Uranium-233, 234, 234, and 238 Analyses: The average yield for six analyses was (52 ± 12%). The lowest yield was 43% and the highest was 60%. The average MDA was 0.17 ± 0.034 pCi/g. Concentrations of ^{234}U and ^{238}U above the RDL were found in all of the samples.

3.6 Plutonium-238, 239/240 Analyses: The average yield for six analyses was (65 ± 32%). The lowest yield was 33% and the highest was 76%. The average MDA was 0.034 ± 0.012 pCi/g. Positive plutonium concentrations above the RDL were not found in any of the samples. All sample results were below MDA.

3.7 Americium-241 Analyses: The average yield for six analyses was (69 ± 40%). The lowest yield was 40% and the highest was 91%. The average MDA was 0.028 ± 0.015 pCi/g. Positive americium concentrations above the RDL were not found in any of the samples. All sample results were below the RDL.

3.8 Gamma Scan Analyses: Gamma scan analysis did not find positive concentration of gamma nuclides, except ^{137}Cs in sample 7075-3. The underlined MDA's of the samples were for ^{59}Fe, higher than RDL due to short half-life of ^{59}Fe.

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N208061-01

TMA NORCAL

REPORTING GROUP 7075

DATA SHEET

B07206

SDG	7075	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N208061-01	Client sample id	B07206
Dept sample id	7075-001	Matrix	SOIL
Received	08/05/92	Collected	08/03/92
% moisture		Chain of custody id	002752

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Gross Alpha	Alpha	8.8	5.5	6.5	10	J	80A
Gross Beta	Beta	17	4.1	5.0	15		80B
Uranium 233/234		0.57	0.20	0.12	0.30		U
Uranium 235	15117-96-1	0.058	0.077	0.15	0.30	U	U
Uranium 238	7440-61-1	0.48	0.17	0.12	0.30		U
Plutonium 238	13981-16-3	0	0.014	0.030	0.050	U	PU
Plutonium 239/240		0.005	0.010	0.023	0.050	U	PU
Americium 241	14596-10-2	-0.005	0.009	0.022	0.050	U	AM
Strontium 90	10098-97-2	-0.042	0.81	0.79	1.0	U	Y
Carbon 14	14762-75-5	3.0	4.6	7.5	50	U	C
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	12	0.88				GAM
Iron 59		U		0.28	0.050	U	GAM
Chromium 51	14392-02-0	U		1.1		U	GAM
Cobalt 60	10198-40-0	U		0.044	0.050	U	GAM
Zinc 65	17982-39-3	U		0.11		U	GAM
Ruthenium 106	13967-48-1	U		0.32		U	GAM
Cesium 134	17967-70-9	U		0.031		U	GAM
Cesium 137	10045-97-3	U		0.039	0.050	U	GAM
Europium 152	14683-23-9	U		0.083	0.10	U	GAM
Europium 154	15585-10-1	U		0.054	0.10	U	GAM
Radium 226	13982-67-7	0.45	0.078				GAM
Thorium 228	14274-82-9	0.54	0.046				GAM
Thorium 232	7440-29-1	0.51	0.17				GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.20
Report date	01/04/93

9713505.1809

N208061-02

TMA NORCAL

REPORTING GROUP 7075

DATA SHEET

B07208

SDG	7075	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N208061-02	Client sample id	B07208
Dept sample id	7075-002	Matrix	SOIL
Received	08/05/92	Collected	08/03/92
% moisture		Chain of custody id	002752

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Gross Alpha	Alpha	7.6	4.9	5.3	10	J	80A
Gross Beta	Beta	15	4.3	5.7	15		80B
Uranium 233/234		0.41	0.23	0.17	0.30		U
Uranium 235	15117-96-1	0.026	0.11	0.20	0.30	U	U
Uranium 238	7440-61-1	0.44	0.19	0.17	0.30		U
Plutonium 238	13981-16-3	-0.001	0.015	0.029	0.050	U	PU
Plutonium 239/240		0.003	0.006	0.011	0.050	U	PU
Americium 241	14596-10-2	-0.003	0.012	0.030	0.050	U	AM
Strontium 90	10098-97-2	0.23	0.25	0.99	1.0	U	Y
Carbon 14	14762-75-5	0.61	3.2	5.3	50	U	C
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	14	0.93				GAM
Iron 59		U		0.29	0.050	U	GAM
Chromium 51	14392-02-0	U		1.1		U	GAM
Cobalt 60	10198-40-0	U		0.044	0.050	U	GAM
Zinc 65	17982-39-3	U		0.13		U	GAM
Ruthenium 106	13967-48-1	U		0.34		U	GAM
Cesium 134	17967-70-9	U		0.045		U	GAM
Cesium 137	10045-97-3	U		0.040	0.050	U	GAM
Europium 152	14683-23-9	U		0.076	0.10	U	GAM
Europium 154	15585-10-1	U		0.045	0.10	U	GAM
Radium 226	13982-67-7	0.44	0.084				GAM
Thorium 228	14274-82-9	0.56	0.048				GAM
Thorium 232	7440-29-1	0.62	0.16				GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.20
Report date	01/04/93

9713505.1810

TMA NORCAL

REPORTING GROUP 7075

N208061-03

DATA SHEET

B07211

SDG	7075	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N208061-03	Client sample id	B07211
Dept sample id	7075-003	Matrix	SOIL
Received	08/05/92	Collected	08/03/92
% moisture		Chain of custody id	002752

PARAMETER	CAS NO	RESULT pCi/G	2σ ERR (COUNT)	MDA pCi/G	RDL pCi/G	QUALI-FIERS	TEST
Gross Alpha	Alpha	4.7	5.0	6.8	10	U	80A
Gross Beta	Beta	17	4.0	4.9	15		80B
Uranium 233/234		0.62	0.22	0.17	0.30		U
Uranium 235	15117-96-1	0	0.042	0.16	0.30	U	U
Uranium 238	7440-61-1	0.31	0.14	0.13	0.30		U
Plutonium 238	13981-16-3	0.011	0.019	0.036	0.050	U	PU
Plutonium 239/240		0.006	0.019	0.032	0.050	U	PU
Americium 241	14596-10-2	-0.004	0.008	0.029	0.050	U	AM
Strontium 90	10098-97-2	0	5.9	1.1	1.0	U	Y
Carbon 14	14762-75-5	3.2	4.8	7.9	50	U	C
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	8.3	1.7				GAM
Iron 59		U		0.71	0.050	U	GAM
Chromium 51	14392-02-0	U		3.6		U	GAM
Cobalt 60	10198-40-0	U		0.17	0.050	U	GAM
Zinc 65	17982-39-3	U		0.42		U	GAM
Ruthenium 106	13967-48-1	U		1.1		U	GAM
Cesium 134	17967-70-9	U		0.13		U	GAM
Cesium 137	10045-97-3	0.67	0.18		0.050		GAM
Europium 152	14683-23-9	1.2	0.35		0.10		GAM
Europium 154	15585-10-1	U		0.49	0.10	U	GAM
Radium 226	13982-67-7	0.37	0.21				GAM
Thorium 228	14274-82-9	0.40	0.15				GAM
Thorium 232	7440-29-1	0.44	0.41				GAM

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.20
Report date	01/04/93