9613492.8135

B07QB4-TMA-387

START

0045416

562

000002

CASE NARRATIVE

OCT 1996 RECEIVED EDMC

LABORATORY : TMA/ARLI

CASE : 12-058

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : December 16, 1992

1.0 DESCRIPTION OF CASE :

One water sample was analyzed for TCL Organics-Volatiles, Semivolatiles and Pesticide/PCB 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	pH
B07QB4	A2-12-058-01A	V	WATER	2
B07QB4 MS	A2-12-058-01B	V	WATER	2
B07QB4 MSD	A2-12-058-01C	V	WATER	2
B07QB4	A2-12-058-01D	SV & P	WATER	
B07QB4 MS	A2-12-058-01E	SV & P	WATER	
B07QB4 MSD	A2-12-058-01F	SV & P	WATER	

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL WATER :

The samples were analyzed within the CLP SOW holding times. Sample B07QB4MS had a spike recovery for Toluene slightly above the QC limit. 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 WATER :

The samples were extracted and analyzed within the CLP SOW holding times.

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 12/21/92 and analyzed in accordance with the EPA CLP SOW. The sequence was analyzed by single injection into a dual column system. After the injection on 12/22/92, at 04:31 AM, the autosampler malfunctioned. After maintenance the sequence was resumed with the injection of PIBLK03 on 12/22/92 at 07:53 AM and was followed by PEM03. The samples that were injected between PEM02 and PEM03 were re-injected later in the sequence. The sequence met all the QC criteria specified in the CLP SOW.

The Chromatograms are presented in the manner consistent with the capabilities of the Nelson 2700 Turbochrome Data System which normalizes the largest peak to scale.

SAMPLE NOTES :

LOW LEVEL WATER :

The samples were extracted and analyzed within the CLP SOW holding times. The surrogate recoveries of DCB in sample PBLK1217C were slightly below the advisory limits for both GC columns. 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

Wida Ang
Organics Supervisor

9613492.8137

000004

EPA SAMPLE NO.

B07QB4

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

atrix: (soil/water) WATER Lab Sample ID: A212058-01A

ample wt/vol: 5.0 (g/mL) ML Lab File ID: 21218B12

evel: (low/med) LOW Date Received: 12/16/92

Moisture: not dec. ____ Date Analyzed: 12/18/92

C Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		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	13	
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

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000005
EPA SAMPLE NO.

B07QB4

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

atrix: (soil/water) WATER Lab Sample ID: A212058-01A

ample wt/vol: 5.0 (g/mL) ML Lab File ID: 21218B12

evel: (low/med) LOW Date Received: 12/16/92

Moisture: not dec. ____ Date Analyzed: 12/18/92

C Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	4.30	10	J

9613492.8139

000006

EPA SAMPLE NO.

B07QB4

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

ıb Name: TMA/ARLI Contract: WHC

ıb Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

ıtrix: (soil/water) WATER Lab Sample ID: A212058-01D

ımple wt/vol: 1000 (g/mL) ML Lab File ID: 21222S12

ıvel: (low/med) LOW Date Received: 12/16/92

Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/17/92

ɔncentrated Extract Volume: 1000 (uL) Date Analyzed: 12/22/92

ıjection Volume: 2.0(uL) Dilution Factor: 1.0

ᵊC Cleanup: (Y/N) N pH: ____

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	25	U

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000007
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07QB4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21222S12

Level: (low/med) LOW Date Received: 12/16/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/17/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	6	J
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

9613492.8141

000008
EPA SAMPLE NO.

B07QB4

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

atrix: (soil/water) WATER Lab Sample ID: A212058-01D

ample wt/vol: 1000 (g/mL) ML Lab File ID: 21222S12

evel: (low/med) LOW Date Received: 12/16/92

Moisture: ____ decanted: (Y/N) ___ Date Extracted: 12/17/92

oncentrated Extract Volume: 1000 (uL) Date Analyzed: 12/22/92

njection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) N pH: ____

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613492.8142

000009

EPA SAMPLE NO.

B07QB4

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

ɔ Name: TMA/ARLI Contract: WHC

ɔ Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

:rix: (soil/water) WATER Lab Sample ID: A212058-01D

nple wt/vol: 1000 (g/mL) ML Lab File ID: _____

Moisture: _____ decanted: (Y/N) ___ Date Received: 12/16/92

:raction: (SepF/Cont/Sonc) CONT Date Extracted: 12/17/92

ncentrated Extract Volume: 10000 (uL) Date Analyzed: 12/24/92

jection Volume: 1.00 (uL) Dilution Factor: 1.00

: Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

PAGE 1 9613492.8143 CHAIN OF CUSTODY ORD # N2-12-095

RCVD: 12.16.92 DUE: 04.15.93 12.16.92 14:15:34 KEEP: 04/15/93 DISP: S

000002

DASH	SAMPLE IDENTIFICATION	STORED	TESTS for PRACTICKS with work in DEPT: SU and CATEGORY				
01A-W	B07GE4	ARL1	WH018	WH019	WH020	WH043	WH135
01C-W	B07GE4 ME	ARL1	WH018	WH019	WH020	WH043	
01D-W	B07GE4 MED	ARL1	WH018	WH019	WH020		
01E-W	B07GE4 D.P	ARL1	WH043	WH135			

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Yamamoto	12-16-92	ARL1	12-16-92	[signature]	12/17/92

9613492.8144

000002A

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator J.R. Reeves

Company Contact WV SETZER

Telephone 376-2413

Project Designation/Sampling Locations 100-NR-1

Collection Date 12-14-92

Ice Chest No. SML-235, SML-256, SML-170

Field Logbook No. EFL-1062

Bill of Lading/Airbill No.

Offsite Property No.

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA/NORCAL

Possible Sample Hazards/Remarks None detected with field instruments. Maintain at 4C.

Sample Identification

307QB4
- 3 1000ml P:CLP;ICP/AA Metals,Hg
- 3 1000ml P:CLP;Cn
- 3 40ml aG:CLP;VOA
- 3 2360ml aG:CLP;Semi-VOA,PCB,PEST
- 1 500ml aG:300.0;Anions(F,SO4,PO4,CL)
- ✓1 500ml aG, 9050;Conductivity
- 3 2360 aG:Gross alpha/beta,Gamma Spec, Sr-90,U-235/238, Pu-239/240,Am-241
- 1 500ml P, C-14
- 1 1000ml P:Tc-99
- 1 250ml aG:Tritium

[] Field Transfer of Custody

Relinquished by:	Received by:	Date/Time:
R Reeves 12-15-92 14:00	Anne Alonzo	12/16/92 12:15
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Chain of Possession (Sign and Print Names)

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

-6000-407 (12/90) (EF) WEF061
hain of Custody

Westinghouse
Hanford Company

9613492.8145

SAMPLE ANALYSIS REQUEST

000028

Collector JR REEVES

Date 12-15-92

Company Contact WV SETZER

Telephone (509)376-2413

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B07QB4	W	12-14-92	14:20	3 1000ml P CLP;ICP/AA Metals,Hg 3 1000 P CLP: Cn 1 500ml P: C-14 1 1000ml P: Tc-99 3 40ml aG CLP;VOA 3 2360ml aG CLP: Semi-VOA,PCB,PEST 1 500ml aG: 300.0;Anions (F,SO4,PO4, CL) 3 2360ml aG: Gross alpha/beta,Gamma Spec,Sr-90 U-235/238,Pu-239/240,Am-241 1 250ml aG: Tritium

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

Field Information FROM 100-NR-1 Drilling

Special Handling and/or Storage Maintain at 4C

Possible Sample Hazards NA

A-6000-406 (06/91) WEF060

9613492.8146

SAMPLE LOG-IN SHEET

000003

LAB NAME: TMA/ARLI

PAGE: 1 OF 1

RECEIVED BY (PRINT NAME): D. WHITAKER

LOG-IN-DATE: 12-17-92

RECEIVED BY (SIGNATURE): David Whitaker

CASE NUMBER:

SAMPLE DELIVERY GROUP NO.:

SAS NUMBER:

REMARKS: SMC-170

		EPA SAMPLE #	CORRESPONDING SAMPLE TAG #	CORRESPONDING ASSIGNED LAB #	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC
			B079B4	A2-12-058-01	

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.: 5188042556
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: 12-17-92
12. Temp of ice chest: 2 °C
13. Time Recieved: 10:00

SAMPLE TRANSFER

Fraction:

Area #:

By:

On:

* Contact SMO and attach record of resolution

Reviewed By:

Date:

Logbook No.:

Logbook Page No.:

FORM DC-1

9613492.8147

000004

TMA/ARLI
Thermo Analytical Inc.

RADIATION DOSE RATE SURVEY FORM

Date 12/17/92 COMPANY NORCAL (WHC) OTHER ORD # 5188042856

Surveyor's Name MARK S. McCLOY

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

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

Calibration Date 12/02/92 Calibration Date 8/01/92

Instrument Calibration Factor .280 Instrument Calibration Factor 0.188

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		35.0			1.0				
Consistency		7,390	0.2853		5,080	0.1867			
Smear: SML 170		65.0			9.0				
Reported (WHC)		one	sample		<50	pCi/gm		—	—

Comments:

All OK ✓ Approved MSM

Not OK Date 12/17/92

9613492.8148

000005

FEDERAL EXPRESS

[redacted]

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 518304285[illegible]

2337A 518804285[illegible]

[redacted] Date 12·16·92

RECIPIENT'S COPY

From (Your Name) Please Print: SAMPLE CONTROL

Your Phone Number (Very Important): (510)235-2033

Company: T A INDUSTRIAL

Department/Floor No.:

Street Address: 2035 WRIGHT AVE

City: [illegible] State: CA ZIP Required: 94[illegible]

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

Recipient's Phone Number (Very

Company: TMA/ ARC

Department/F

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.): [illegible]-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 5 [ ] Cash/Check [redacted]

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery)
51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 [ ] ECONOMY

Government Overnight (Restricted to authorized users only)
46 [ ] GOV'T LETTER
41 [ ] GOV'T PACKAGE

Freight Service (For packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**
†Delivery commitment may be later in some areas
*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) [ ] (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT in Pounds Only | YOUR DECLARED VALUE
Total 1 | Total 68 | Total

DIM SHIPMENT (Chargeable Weight)
[ ] lbs.
L x W x H

Received At
1 [X] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C 5 [ ] Station

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

7 Release Signature

Federal Express
Base Charges
Declared Value C
Other 1
Other 2
Total Charges

REVISION DATE 2/92
PART #137204 FXE
FORMAT #126
126

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GENERAL CHEMISTRY RESULTS

CASE NO. 12-058

Water Sample #:

B07QB4

CASE NARRATIVE

The holding time for the Anions and Specific Conductivity analyses was exceeded. Careful review of the QC analysis indicate the data is reliable.

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

Ernesto Vázquez

Ernesto Vazquez

9613492.8150

000008

TMA Inc. REPORT Work Order # A2-12-058

ceived: 12/16/92 02/11/93 13:39:57

REPORT TO: Westinghouse Hanford Company
2355 Stevens Dr.
Richland,WA.99352
MO-346/200 West/T6-08
ATTEN: Jeanette Duncan

PREPARED BY: Thermo Analytical, Inc.
160 Taylor Street
Monrovia, CA 91016
ATTEN: Ms. Carole Harris
PHONE: 818-357-3247

CERTIFIED BY: Ernesto Vizguez

CONTACT: EVV CIH

CLIENT: WHC SAMPLES: 2
OMPANY: Westinghouse Hanford Company
CILITY:

This report is for the sole and exclusive use of the client to whom it is addressed and represents only those samples herein described. Samples not destroyed in testing are retained a maximum of 30 days unless otherwise requested.

ORK ID: 100-NR-1
TAKEN: By Westinghouse Staff
TRANS: By Federal Express
TYPE: Liquid
P.O. #: N2-12-098-SU-AR
NVOICE: under separate cover

SAMPLE IDENTIFICATION	TEST CODES and NAMES used on this workorder	
B07QB4	BNCLPW	CLP Semivol. Water - WH020
B07QB4 MS	PECLPL	CLP Pesticides Liq.-WH019
B07QB4 MSD	VOCLPL	CLP Volatile Org.Liq.
B07QB4	WCCLPL	Anions & Wet Chem. - WH043
B07QB4 MS	WCL L	Chloride - WH120
B07QB4 MSD	WCQCD	Quality Control Summary
B07QB4	WCQCS	Quality Control Summary
B07QB4 MS	WF L	Fluoride in Water
B07QB4 Duplicate	WPO4 L	Phosphate in Liquids
B07QB4	WSO4 L	Sulfate (in Waters)
B07QB4 Duplicate	W COND	Conductivity-Water WH135
Wet Chemistry Blank		

9613492.8151

000009

TMA Inc. REPORT Work Order # A2-12-058

:eived: 12/16/92 Results by Sample

IPLE ID B07984 FRACTION 01G TEST CODE WCCLPL NAME Anions & Wet Chem. - WW043

Date & Time Collected 12/14/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	<0.2	mg/L	0.2
Fluoride	300.0	<0.1	mg/L	0.1
Phosphate	300.0	<0.4	mg/L	0.4
Sulfate	300.0	3290	mg/L	50

FORM I

9613492.8152

000010

TMA Inc. REPORT Work Order # A2-12-058

·eived: 12/16/92 Results by Sample

PLE ID B07QB4 FRACTION 01J TEST CODE VCCLPL NAME Anions & Wet Chem. - VH043

Date & Time Collected 12/14/92 Category

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Elect. Conductivity	120.1	211	umho/cm	6

FORM I

9613492.8153

TMA
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

FEB 1993
RECEIVED
OSM DMO

January 19, 1993

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

Quality Control Narrative

Scope
One (1) water sample was submitted to TMA/Skinner & Sherman Laboratories, Inc. on December 17, 1992 from TMA/Norcal. The sample was analyzed for the USEPA CLP metals and cyanide. The analysis was performed under TMA/Skinner and Sherman work order S212290.

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 sample with the following exceptions;

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

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

Respectfully submitted,

TMA/SKINNER & SHERMAN LABORATORIES, INC.

David N. Peterson
Assistant Laboratory Manager

9613492.8154

WESTINGHOUSE/HANFORD
1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER: B07QB4

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

ab Code: SKINER Case No.: N2-12-098SAS No.: SDG No.: B07QB4

atrix (soil/water): WATER Lab Sample ID: 12290-01S

evel (low/med): LOW Date Received: 12/17/92

Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1340			P
7440-36-0	Antimony	23.2	B		P
7440-38-2	Arsenic	3.7	U		F
7440-39-3	Barium	109	B		P
7440-41-7	Beryllium	0.50	U		P
7440-43-9	Cadmium	2.0	B		P
7440-70-2	Calcium	57300			P
7440-47-3	Chromium	9.0	B		P
7440-48-4	Cobalt	2.5	U		P
7440-50-8	Copper	21.4	B		P
7439-89-6	Iron	2990		N	P
7439-92-1	Lead	4.2			F
7439-95-4	Magnesium	4720	B		P
7439-96-5	Manganese	41.7			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	4.7	B		P
7440-09-7	Potassium	1200	B		P
7782-49-2	Selenium	16.5	U	WN	F
7440-22-4	Silver	3.9	U		P
7440-23-5	Sodium	2020	B		P
7440-28-0	Thallium	1.5	U		F
7440-62-2	Vanadium	9.2	B		P
7440-66-6	Zinc	33.9			P
	Cyanide	10.0	U		CA

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLOUDY Artifacts:

Comments:

9613492.8155

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE:

AIRBILL PACKAGE TRACKING NUMBER 5188042871

2237H 5188042871

RECIPIENT'S COPY

1 Date 12-17-92

From (Your Name) Please Print: SAMPLE CONTROL
Your Phone Number (Very Important): (510)235-2633
Company: F.M.A. INDUSTRIAL
Department/Floor No.:
Street Address: 2030 WRIGHT AVE
City: RICHMOND State: CA ZIP Required: 94804

2 To (Recipient's Name) Please Print: SAMPLE CONTROL
Recipient's Phone Number (Very Important): ( )
Company: SKINNER & SHERMAN LAB.
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 300 SECOND AVENUE
City: WALTHAM State: MA ZIP Required: 02254

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.): 2320-6401p

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 5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
11 [X] YOUR PACKAGING
16 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*
13 [ ] FEDEX BOX
14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon, No Saturday delivery†)
51 [ ] YOUR PACKAGING
56 [ ] FEDEX LETTER*
52 [ ] FEDEX PAK*
53 [ ] FEDEX BOX
54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
30 [ ] ECONOMY

Government Overnight (Applicable for authorized cases only)
49 [ ] GOVT LETTER
41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
70 [ ] OVERNIGHT FREIGHT† (Confirmed reservation required)
80 [ ] TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas
*Declared Value Limit $500
**Call for delivery schedule

5 DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP (Fill in Box H)
2 [X] DELIVER WEEKDAY
3 DELIVER SATURDAY (Extra charge) (Not available to all locations) [ ]
4 [ ] DANGEROUS GOODS (Extra charge)
5 [ ]
6 [ ] DRY ICE Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
[ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES | WEIGHT In Pounds Only | YOUR DECLARED VALUE
Total | Total 2.99 | Total

DIM SHIPMENT (Chargeable Weight) [ ] lbs.
L x W x H

Received At
1 [X] Regular Stop 2 [ ] On-Call Stop 3 [ ] Drop Box 4 [ ] B.S.C. 5 [ ] Station

Emp. No. Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received 12/18/92 FedEx Employee Number 10 00

7 Release Signature:

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/92 PART #137204 FXEM 3/92 FORMAT #126
126
© 1991-92 FEDEX PRINTED IN U.S.A.

9613492.8156

TMA/Skinner & Sherman Labs SAMPLE LOG-IN

WORKORDER 92-12-290 CLIENT Hanford-NOI No. SAMPLES:

PROTCL CLP TURNARND 33 days (Soil) 1 (Water) (Specify Other)

COOLER TEMP: 4 oC, or NA

CUSTODIAN Benny A. SDG/BATCH NA

CUSTODY SEAL: PRESENT/ABSENT/INTACT/NOT CLIENT CASE N2-12-095

SHIPER & # Fedex PO/CONTRACT# ↓

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

CHAIN OF CUSTODY: PRESENT/ABSENT/NA, # COMMENTS:

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 ~~12/18/92~~ 12/17/92

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

N/A

	CLIENT ID	MATRIX	RECEIVED	PH*	TEST(S) & QC	HOLD TIME UP
1	B07QB4	WATER	12/17/92	2.02/11.96	DS TM/CN	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
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16						
17						
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21						
22						
23						
24						
25						
26						
27						

12/21/92 AS

COMPLETE

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

164

* EPA/CLP required Rev 1.6 PAGE: 65

9613492.B157

PAGE 1 TMA/Norcal CHAIN OF CUSTODY ORD # N2-12-098

RCVD: 12/16/92 DUE: 01/15/93 12/16/92 14:19:35 KEEP: 04/15/93 DISP: S

100-NR-1

DASH	SAMPLE IDENTIFICATION		STORED	TESTS for FRACTIONS with work in DEPT: SU and CATEGORY			
01B-W	B07GB4		SS	WH007	WH009	WH010	WH011
01F-W	B07GS4	MS	SS	WH007	WH009	WH010	WH011
01G-W	B07GS4	DUP	SS	WH007	WH009	WH010	WH011
01H-W	L C S		SS	WH007	WH009	WH010	WH011

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
tyamamoto	12-16-92	SKINNER	12-16-92	[illegible]	12/17/92

9613492.8158

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P. O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 Fax No. (510) 235-0438

MAR 1993
RECEIVED
OSM DMO

March 24, 1993

SENT BY FEDERAL EXPRESS

Ref. TMA/Norcal N2-12-100-7140

Ms. Briana Colley
Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23
345 Hills Street/3000 Area
Richland, WA 99352

Dear Ms. Colley:

Enclosed in the Summary Data Section, are the gross alpha, gross beta, ^{3}H, ^{14}C, ^{90}Sr, ^{99}Tc, isotopic uranium, isotopic plutonium, ^{241}Am, and gamma scan results for the water samples from 100-NR-1 Location we received 16 December 1992. The QA/QC results are also given in the Summary Data Section. The Summary Data Section is numbered pages 1 to 45, and the appendices are numbered pages 46 to 314.

Please call if you have any questions concerning this data.

Sincerely,

D. P. Kharkar

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

DPK/jw

Enclosures: Section 1 and 2
Appendices

SDG	7140	Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar	Contract	MBH-SVV-069262

CASE NARRATIVE

1.0 GENERAL

Water sample results from 100-NR-1 location (TMA/Norcal Group 7140) are provided in this report. TMA/Norcal Group 7140 is comprised of the one sample listed on the Chain-of-Custody document below and is identified as sample 1.

1.1 CHAINS-OF-CUSTODY

This report includes data from the sample delivered under Chain-of-Custody document Field Logbook No. EFL-1062.

1.2 SAMPLE VOLUME

3-liter glass bottles, and 250 mL glass bottles containing the sample were received for analysis.

1.3 MISSING SAMPLES

All samples were accounted for in an undamaged condition.

1.4 HOLDING TIMES

The sample was collected on 12/14/92 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 7140-2, 3 and 4.

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 recovery for gross alpha was low (68%) and did not pass at the 3σ total limits. However, when the error was considered, the LCS recovery was within the 3σ total limits. The LCS recovery for ^{14}C was low (24%) and didn't pass at the 3σ total limits. The low recovery for ^{14}C is still under investigation. We have looked at the sample count, the background, the counting efficiency and the chemical yield but have been unable to find anything unusual. LCS recoveries for all other nuclides were satisfactory.

SDG	7140	Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar	Contract	MBH-SVV-069262

CASE NARRATIVE

2.2 BLANKS

Results were satisfactory for all Reagent Blank analyses. The errors for ^{90}Sr and ^{3}H are underlined because the 2σ error is greater than both the MDA and the result implying that the MDA may not be a good estimate of the "real" minimum detectable activity. The ^{14}C result is underlined because the negative result is less than the negative of its 2σ counting error.

2.3 REPLICATES

Results were satisfactory for all Replicate analyses. The MDA of the result for ^{59}Fe is higher than the RDL. This is due to the short half-life of ^{59}Fe. The error for ^{14}C is underlined because the 2σ error is greater than both the MDA and the result implying that the MDA may not be a good estimate of the "real" minimum detectable activity.

3.0 ANALYTICAL NOTES

3.1 Gross Alpha Analyses: The average MDA for gross alpha was (2 ± 1) pCi/L. Gross alpha activity above the RDL was not found in the sample.

3.2 Gross Beta Analyses: The average MDA for gross beta was (2 ± 0) pCi/L. Gross beta activity above the RDL was not found in the sample.

3.3 Tritium Analyses: The average MDA for four analyses was (200 ± 100) pCi/L. ^{3}H activity above the RDL was not found in the sample.

3.4 Carbon-14 Analyses: The average MDA for four analyses was (30 ± 20) pCi/L. ^{14}C activity above the RDL was not found in the sample.

3.5 Strontium-90 Analyses: The average yield for four analyses was (71 ± 14)%. The lowest yield was 61% and the highest was 77%. The average MDA was (1 ± 0.1) pCi/L. ^{90}Sr activity above the RDL was not found in any of the samples analyzed.

3.6 Technicium-99 Analyses: The average yield for four analyses was (59 ± 12)%. The lowest yield was 53% and the highest was 67%. The average MDA was (3 ± 2) pCi/L. ^{99}Tc activity above the RDL was not found in the sample.

3.7 Uranium-233, 234, 238 Analyses: The average yield for four analyses was (78 ± 35)%. The lowest yield was 61% and the highest was 102%. The average MDA was (0.2 ± 0.1) pCi/L. Uranium activity above the RDL was not found in the sample.

SDG	7140	Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar	Contract	MBH-SVV-069262

CASE NARRATIVE

3.8 Plutonium-238, 239/240 Analyses: The average yield for four analyses was (62 ± 11)%. The lowest yield was 55% and the highest was 67%. The average MDA was (0.03 ± 0.01) pCi/L. Plutonium activity above the RDL was not found in the sample. Sample B07QB4 was counted for 689 minutes, 11 minutes less than the nominal time of 700 minutes. The MDA's met the RDL despite the shortened count time.

3.9 Americium-241 Analyses: The average yield for four analyses was (68 ± 19)%. The lowest yield was 56% and the highest yield was 78%. The average MDA was (0.04 ± 0.03) pCi/L. Americium activity above the RDL was not found in the sample. Sample B07QB4 was counted for 689 minutes, 11 minutes less than the nominal time of 700 minutes. The MDA's met the RDL despite the shortened count time.

3.10 Gamma Scan Analyses: Gamma scan analysis did not find positive gamma activity in the sample.

9613492.8162

N212100-01

TMA NORCAL
REPORTING GROUP 7140

DATA SHEET

B07QB4

SDG 7140
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212100-01
Dept sample id 7140-001
Received 12/16/92

Client sample id B07QB4
Matrix WATER
Collected 12/14/92
Chain of custody id EFL-1062

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.21	1.3	2	3	U	80A
Gross Beta	Beta	2.2	1.2	2	4	J	80B
Uranium 233/234		0.22	0.10	0.1	0.2		U
Uranium 235	15117-96-1	0.031	0.031	0.1	0.2	U	U
Uranium 238	7440-61-1	0.19	0.10	0.1	0.2	J	U
Plutonium 238	13981-16-3	0.018	0.021	0.03	0.05	U	PU
Plutonium 239/240		0	0.010	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.019	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.084	0.28	1	2	U	Y
Technetium 99	14133-76-7	3.0	1.3	3	5	J	TC
Tritium	10028-17-8	83	130	200	400	U	H
Carbon 14	14762-75-5	16	19	20	50	U	C
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59	14596-12-4	U		60	30	U	GAM
Chromium 51	14392-02-0	U		300		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		90		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		9	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/24/93

9613492.8163

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator J.R. REEVES

Company Contact WV SETZER

Telephone 376-2413

Project Designation/Sampling Locations 100-NR-1

Collection Date 12-14-92

Ice Chest No. SML-235, SML-256, SML-170

Field Logbook No. EFL-1062

Bill of Lading/Airbill No.

Offsite Property No.

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to TMA/NORCAL

Possible Sample Hazards/Remarks None detected with field instruments. Maintain at 4C.

Sample Identification

B07QB4
3 1000ml P:CLP;ICP/AA Metals,Hg
3 1000ml P:CLP;Cn
3 40ml aG:CLP;VOA
3 2360ml aG:CLP;Semi-VOA,PCB,PEST
1 500ml aG:300.0;Anions(F,SO4,PO4,CL)
✓1 500ml aG, 9050;Conductivity
3 2360 aG:Gross alpha/beta,Gamma Spec, Sr-90,U-235/238, Pu-239/240,Am-241
1 500ml P, C-14
1 1000ml P:Tc-99
1 250ml aG:Tritium

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
12-15-92 JR REEVES JR Reeves 14:00	FANNIE Alfonso Gallegos	12/16/92 12:15
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

047

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

9613492.8164

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

Collector JR REEVES Date 12-15-92

Company Contact WV SETZER Telephone (509)376-2413

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B07QB4	W	12-14-92	14:20	✓ 3 1000ml P CLP;ICP/AA Metals,Hg ✓ 3 1000 P CLP: Cn ✓ 1 500ml P: C-14 ✓ 1 1000ml P: Tc-99 ✓ 3 40ml aG CLP;VOA ✓ 3 2360ml aG CLP: Semi-VOA,PCB,PEST 1 500ml aG: 300.0;Anions (F,SO4,PO4, CL) ✓ 3 2360ml aG: Gross alpha/beta,Gamma Spec,Sr-90 U-235/238,Pu-239/240,Am-241 ✓ 1 250ml aG: Tritium

*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 FROM 100-NR-1 Drilling

Special Handling and/or Storage Maintain at 4C

Possible Sample Hazards NA

A-6000-406 (06/91) WEF060

048

9613492.8165

Overnight Delivery

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Company		W93-0-0122 # 38 pg 1

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental	Env Field Services	Env Charac & Sampling

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing Air [X] Contractor [ ] Vendor

Shipped to	Off-site Custodian
TMA/NORCAL 2030 Wright Ave. Richmond, CA 94804	Delores Sanchez
	Full Title Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 62 lbs	SML-235 poly cooler. Contains ~~soil~~ water samples that are double-bagged and packed in wet ice and vermiculite. Samples are nonhazardous. Sample No. B07QBH (Part 1 of 3)	N/A
1 56 lbs	SML-~~235~~ 256 poly cooler containing water samples that are double-bagged and packed in wet ice and vermiculite. Samples are non-hazardous. Sample #: B07Q84 (Part 2 of 3)	N/A

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

To support drilling and sampling at the 100 Areas

Bill of Lading 2519007744 ~~2312233407~~

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]	112477	12-15-92

Location of Property (Area & Bldg.)	Contact	Phone
100 Area	W. V. Setzer	376-2413

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
12-15-92	PG3BF 84300	N/A

Originated By / Relinquished by:	Date	Authorized By	Date
JR Reeves	12-15-92	JR Reeves	12-15-92
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[illegible]				
Date 12-15-92				049

DISTRIBUTION

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

9613492.8166

Overnight Delivery

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Company		W93-0-0122 #32 pg 2

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Environmental	Env Field Services	Env Charac & Sampling

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing Air [X] Contractor [ ] Vendor

Shipped to

TMA/NORCAL
2030 Wright Ave.
Richmond, CA 94804

Off-site Custodian: Delores Sanchez

Full Title: Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 55 lbs	SMC-170 poly cooler. Contains ~~soil~~ water fill 12-15-92 samples that are double-bagged and packed in wet ice and vermiculite. Samples are nonhazardous. Sample #: B07QB4 (Part 3 of 3)	N/A

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

To support drilling and sampling at the 100 Areas

Bill of Lading 251900 7144 ~~231 225 5467~~

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
JKPA - L 24201	112497	12-15-92

Location of Property (Area & Bldg.)	Contact	Phone
100 Area	W. V. Setzer	376-2413

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
12-15-92	PG3BF 84300	N/A

Originated By: Relinquished by:	Date	Authorized By	Date
R Reeves	12-15-92	JR Reeves	12-15-92
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date 12 15 92				050

DISTRIBUTION

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

54-3000-470 (09/89)

FORM OF PAYMENT

heck ☐ GBL ☐ FCCOD ☐

Bill to Shipper ☐ Bill to Consignee ☐ Third Party Billing ☐

Shipper's Account Number
850281585

EMERY WORLDWIDE

A CF Company

SERVICES **

UNITED STATES / CANADA

☐ Same Day (Extra Charges) ☐ AM ☐ PM_ ☐ Second Day ☐ Saturday Delivery

INTERNATIONAL

Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐

Business Documents ☐ Customs Clearance ☐ Delivery ☐

Date	Origin	Shipment Number
12-15-92	PSC	251900774 4

m:
ESTINGHOUSE SHIPPING DEPT(509)376-6665
.S. DEPARTMENT OF ENERGY C/O
ESTINGHOUSE HANFORD
BLDG 1163
355 STEVENS DRIVE
ICHLAND WA

Canada ☐

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA

Hold for Pick Up ☐ Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

EMERY WORLDWIDE will accept Consignee's check with all risks being assumed by Shipper, including but not limited to non-payment, fraud and misrepresentation.

Customer's Reference Numbers
84300 PG3BF W93-0-0122#38
84300

97352

E Consignee's Account Number 94804

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
3 POLYCOOLERS WATER SAMPLES SML-35 SML256/SML 80	3	21	16	17	3	183#

Remarks
ERNIGHT DELIVERY
12 15 92
per's ature X

Zip Ship ☐
For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used
Urgent Letter 9X12 ☒ Urgent Pack 12X15 ☒

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

Declared Value $

251900774 4

International Shipments
Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

International Customs Value | International Insurance

se Charge

Total Transportation Charges

Other Charges/Advance at Origin ☐ OC/AO- $

1-OAKA

Terms & Conditions on Back

9613492.8168

X02089

000004
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B07QB4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21218B12

Level: (low/med) LOW Date Received: 12/16/92

% Moisture: not dec. ____ Date Analyzed: 12/18/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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	13	
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

4-20-93 SC

9613492.8169

000005
EPA SAMPLE NO.

B07QB4

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 21218B12

Level: (low/med) LOW Date Received: 12/16/92

% Moisture: not dec. ____ Date Analyzed: 12/18/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	4.30	10	J N

4-20-93 SC

9613492.8170

X02089 000006

EPA SAMPLE NO.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07QB4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21222S12

Level: (low/med) LOW Date Received: 12/16/92

% Moisture: ____ decanted: (Y/N) ___ Date Extracted: 12/17/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	25	U

4-2093SC

9613492.8171

000007
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07QB4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21222S12

Level: (low/med) LOW Date Received: 12/16/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/17/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	6	J
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

A-20-93 SC 3/90

9613492.8172

000008
EPA SAMPLE NO.

B07QB4

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 21222S12

Level: (low/med) LOW Date Received: 12/16/92

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 12/17/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 12/22/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4-20-93 SC

9613492.8173

X02089

000009
EPA SAMPLE NO.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

B07QB4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 12058 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A212058-01D

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 12/16/92

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 12/17/92

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 12/24/92

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

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

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-36-3	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

4-20-93 SC

9613492.8174

WESTINGHOUSE/HANFORD
1

X02089

SAMPLE NUMBER:

B07QB4

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: SKINER Case No.: N2-12-098SAS No.: SDG No.: B07QB4

Matrix (soil/water): WATER Lab Sample ID: 12290-01S

Level (low/med): LOW Date Received: 12/17/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1340			P
7440-36-0	Antimony	23.2	~~B~~	U	P
7440-38-2	Arsenic	3.7	~~U~~	U	F
7440-39-3	Barium	109	B		P
7440-41-7	Beryllium	0.50	~~U~~	U	P
7440-43-9	Cadmium	2.0	~~B~~	U	P
7440-70-2	Calcium	57300			P
7440-47-3	Chromium	9.0	~~B~~	U	P
7440-48-4	Cobalt	2.5	~~U~~	U	P
7440-50-8	Copper	21.4	~~B~~	U	P
7439-89-6	Iron	2990		~~N~~ J	P
7439-92-1	Lead	4.2		U	F
7439-95-4	Magnesium	4720	B		P
7439-96-5	Manganese	41.7			P
7439-97-6	Mercury	0.10	~~U~~	U	CV
7440-02-0	Nickel	4.7	~~B~~	U	P
7440-09-7	Potassium	1200	B		P
7782-49-2	Selenium	16.5	~~U~~	~~WN~~ R	F
7440-22-4	Silver	3.9	~~U~~	U	P
7440-23-5	Sodium	2020	B		P
7440-28-0	Thallium	1.5	~~U~~	U	F
7440-62-2	Vanadium	9.2	~~B~~	U	P
7440-66-6	Zinc	33.8			P
	Cyanide	10.0	~~U~~	U	CA

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLOUDY Artifacts:

4-20-93 SC

Comments:

FORM I - IN ILM02.1

0(

9613492.8175

000009

TRA Inc. REPORT Work Order # A2-12-058

Received: 12/16/92

Results by Sample

SAMPLE ID 807984 FRACTION 01G TEST CODE WCCLPL NAME Anions & Wet Chem. - WH043

Date & Time Collected 12/14/92 Category

X02089

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Chloride	300.0	<0.2	mg/L	0.2
Fluoride	300.0	<0.1	mg/L	0.1
Phosphate	300.0	<0.4 R	mg/L	0.4
Sulfate	300.0	3290	mg/L	50

FORM I

4-20-92 SC

9613492.8176

TMA Inc. REPORT Work Order # A2-12-058

Received: 12/16/92

Results by Sample

SAMPLE ID B07984 FRACTION 01J TEST CODE WCCLPL NAME Anions & Wet Chem. - VH043

Date & Time Collected 12/14/92 Category

X02089

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Elect. Conductivity	120.1	211 J	umho/cm	6

FORM I

4-20-92 SL

9613492.8177

N212100-01

TMA NORCAL
REPORTING GROUP 7140

DATA SHEET

B07QB4

SDG 7140
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N212100-01
Dept sample id 7140-001
Received 12/16/92
Client sample id B07QB4
Matrix WATER
Collected 12/14/92
Chain of custody id EFL-1062

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.21	1.3	2	3	U	80A
Gross Beta	Beta	2.2	1.2	2	4	J	80B
Uranium 233/234		0.22	0.10	0.1	0.2		U
Uranium 235	15117-96-1	0.031	0.031	0.1	0.2	U	U
Uranium 238	7440-61-1	0.19	0.10	0.1	0.2	J	U
Plutonium 238	13981-16-3	0.018	0.021	0.03	0.05	U	PU
Plutonium 239/240		0	0.010	0.02	0.05	U	PU
Americium 241	14596-10-2	0	0.019	0.04	0.05	U	AM
Strontium 90	10098-97-2	0.084	0.28	1	2	U	Y
Technetium 99	14133-76-7	3.0	1.3	3	5	J	TC
Tritium	10028-17-8	83	130	200	400	U	H
Carbon 14	14762-75-5	16	19	20	50	U	C
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59	14596-12-4	U		60	30	U	GAM
Chromium 51	14392-02-0	U		300		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	13982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		90		U	GAM
Cesium 134	13967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		9	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		10	40	U	GAM
Radium 226	13982-63-3	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

NV RBC

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.23
Report date 03/24/93