START

9613424.0492

B014Q0-TMA-037

0043731

WESTINGHOUSE HANFORD COMPANY

Results of Analyses For:

GENERAL CHEMISTRY AND ORGANICS
CASE NO. 10-003
(TMA/ARLI Workorder # A1-10-003)

METALS
N1-09-170
(TMA/Skinner & Sherman Workorder # 9110068)

General Chemistry and Organics results are presented for the following WHC WATER samples(s):

B014Q0
B014Q1
B014P9

APR 1996
RECEIVED
EDMC

Metals results are presented for the following WHC WATER samples(s):

B014Q0
B014Q1

Westinghouse Task Agreement No. W91-011D

TMA Master Workorder No. A1-10-001

DEC 1991
RECEIVED
OSM DMO

Thermo Analytical Inc.
160 Taylor Street
Monrovia, Ca. 91016

818-357-3247

ia

WESTINGHOUSE HANFORD COMPANY

GENERAL CHEMISTRY RESULTS

CASE NO. 10-003

Case Narrative

No problems were encountered during analysis of the samples.

Georgia Carroll, Project Manager

Received: 10/26/91

Results by Sample

SAMPLE ID B014Q0 FRACTION 01A TEST CODE WCCLPL NAME Anions and Wet Chemistry

Date & Time Collected 09/20/91 Category RAD

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Fluoride	300	<0.05	mg/L	0.05
Nitrite	300	<0.05	mg/L	0.05
Nitrate	300	<0.1	mg/L	0.1
Sulfate	300	<0.3	mg/L	0.3
pH	150.1	7.21	pH	NA

FORM I

Received: 10/26/91

Results by Sample

SAMPLE ID B014Q0 FRACTION 01D TEST CODE WCCLPL NAME Anions and Wet Chemistry

Date & Time Collected 09/20/91 Category RAD

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Ammonia	350.1	<0.5	mg/L	NA

FORM I

Received: 10/26/91

Results by Sample

SAMPLE ID B014Q1 FRACTION 02A TEST CODE WCCLPL NAME Anions and Wet Chemistry

Date & Time Collected 09/20/91 Category RAD

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Fluoride	300	<0.05	mg/L	0.05
Nitrite	300	<0.05	mg/L	0.05
Nitrate	300	0.5	mg/L	0.1
Sulfate	300	<0.3	mg/L	0.3
pH	150.1	5.61	pH	NA

FORM I

SAMPLE ID B014Q1 FRACTION 02B TEST CODE WCCLPL NAME Anions and Wet Chemistry
Date & Time Collected 09/20/91 category RAD

ANIONS AND WET CHEMISTRY - LIQUIDS

ANALYSIS	METHOD	RESULT	UNITS	LIMIT
Ammonia	350.1	<0.5	mg/L	NA

FORM I

CASE NARRATIVE

LABORATORY: TMA/ARLI

CASE: 10-003

CONTRACT ID: WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE: October 2, 1991

1.0 DESCRIPTION OF CASE:

Three water samples were analyzed for TCL Volatiles and Pesticide/PCB's according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision 2/88.

2.0 SAMPLE LIST:

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B014Q0	A1-10-003-01E	V	WATER
B014Q0	A1-10-003-01F	P	WATER
B014Q1	A1-10-003-02C	P	WATER
B014Q1	A1-10-003-02D	V	WATER
B014P9	A1-10-003-03A	V	WATER

3.0 COMMENTS:

3.1 SHIPPING AND DOCUMENTATION:

The samples were received by TMA/Norcal on 9/26/91. However, due to shipping problems the SW-846 holding times were exceeded upon receipt of the samples. TMA/Arli contacted WHC for permission to run out of hold time did not officially receive permission from Westinghouse Hanford Company to proceed with the analyses until October 2, 1991.

3.2 ANALYSIS:

3.2.1 VOLATILE ANALYSIS COMMENTS:

The samples were analyzed out of holding times with permission from Westinghouse Hanford Company. All of the QC results were within the limits specified in the EPA CLP SOW with the exception of the MS and MSD recoveries. The matrix spiked compounds, Trichloroethene, Benzene and Toluene had percent recoveries above the QC limits in both samples B014P9MS and B014P9MSD. The MS percent recovery of Chlorobenzene was also above the QC limit.

3.2.2 PESTICIDE/PCB ANALYSIS COMMENTS:

SEQUENCE NOTES:

IND A and IND B were run consecutively throughout the sequence as a check on the system. The following standards were used for quantitation:

IND A	03:17	10/08/91	(B10727)
IND B	12:42	10/08/91	(B10741)
IND A	20:31	10/08/91	(B10753)
IND A	09:34	10/09/91	(B10766)
IND B	10:12	10/09/91	(B10767)

After the injection made at 02:47 on 10/09/91 the auto sampler jammed. After maintenance was performed, the sequence was resumed at 08:17 on 10/09/91 with the next injection. Due to the limitations of the software used to report 2/88 CLP protocol for Pesticides/PCB, instrument blanks are not reported. An instrument blank was injected at 02:42 on 10/08/91 (GC files B10726 and A10726). Another instrument blank was injected at 00:16 on 10/09/91 (GC files B10759 and A10759). Both blanks showed no evidence of carry over.

SAMPLES:

The samples were extracted out of holding times with permission form Westinghouse Hanford Company. The samples were analyzed within holding times. The sequence was within the limits specified in the EPA CLP SOW.

It appears that all of the samples were spiked with DBC at two times the level required by the CLP SOW.

Sample ID	Reported DBC Recovery	Assuming Double Spike DBC Recovery
PBLK7	218	109
B014Q0	216	108
B014Q1	220	110
PBL7BS	153	76
PBL7BSD	281	146

The re-calculated DBC recoveries are all within the QC limits specified in the EPA CLP SOW. As a result of the above mentioned problem, TMA/Arli has institutited a two party spiking system, wherein one person is spiking the sample and another is observing the procedure.

Since Westinghouse Hanford Company did not submit enough sample to do the required MS and MSD analyses, a blank spike and blank spike duplicate were extracted and analyzed. This was done with permission from WHC. The Form III, Matrix Spike/Matrix Spike Duplicate Recovery Form, reports sample B014Q0 as the unspiked sample. This is due to software limitations in reporting the data. The spiked samples were laboratory blanks. The Matrix spike compounds of sample PBL7BS are uniformly lower than sample PBL7BSD. Even though the Percent Recoveries for both samples are within the QC limits, the Percent RPD is above the QC limit.

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

Dennis D. Wells
Laboratory Manager

EPA SAMPLE NO.

B014P9

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-03A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 1009K16

Level: (low/med) LOW Date Received: 10/02/91

% Moisture: not dec. ____ Date Analyzed: 10/09/91

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

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

9613424.0502
1E

0006

EPA SAMPLE NO.

B014P9

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-03A

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 1009K16

Level: (low/med) LOW Date Received: 10/02/91

% Moisture: not dec. ____ Date Analyzed: 10/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B014Q0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-01E

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 1009K14

Level: (low/med) LOW Date Received: 10/02/91

% Moisture: not dec. ____ Date Analyzed: 10/09/91

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B014Q0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-01E

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 1009K14

Level: (low/med) LOW Date Received: 10/02/91

% Moisture: not dec. ____ Date Analyzed: 10/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613424.0505

0009

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B014Q0

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-01F

Sample wt/vol: 990.0 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 10/02/91

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

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 10/08/91

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

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
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B014Q1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-02D

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 1009K15

Level: (low/med) LOW Date Received: 10/02/91

% Moisture: not dec. ____ Date Analyzed: 10/09/91

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

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

9613424.0507

0011

1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B014Q1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-02D

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: 1009K15

Level: (low/med) LOW Date Received: 10/02/91

% Moisture: not dec. ____ Date Analyzed: 10/09/91

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

9613424.0508

0012

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B014Q1

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 10003 SAS No.: NA SDG No.: NA

Matrix: (soil/water) WATER Lab Sample ID: A110003-02C

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

Level: (low/med) LOW Date Received: 10/02/91

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

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 10/08/91

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

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
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

9613424.0509

WESTINGHOUSE/HANFORD

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

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

Lab Code: SKINER Case No.: N1-09-170 SAS No.: SDG No.: B014Q0

SOW No.: 7/88

SAMPLE NUMBER:	Lab Sample ID.
B014Q0	10068-01S
B014Q0D	10068-01S2
B014Q0S	10068-01DS
B014Q1	10068-02S

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: David N. Peterson

Date: 10/21/91 Title: Asst. Laboratory Manager

9613424.0510

WESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B01401

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

Lab Code: SKINER Case No.: N1-09-170SAS No.: SDG No.: B01400

Matrix (soil/water): WATER Lab Sample ID: 10068-02S

Level (low/med): LOW Date Received: 10/09/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17.00	U		P
7440-36-0	Antimony	14.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	1.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	1.00	U		P
7440-70-2	Calcium	8.00	U		P
7440-47-3	Chromium	2.00	U		P
7440-48-4	Cobalt	2.00	U		P
7440-50-8	Copper	2.00	U		P
7439-89-6	Iron	7.00	U		P
7439-92-1	Lead	2.70	B		F
7439-95-4	Magnesium	14.00	U		P
7439-96-5	Manganese	1.00	U		P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.00	U		P
7440-09-7	Potassium	73.00	U		P
7782-49-2	Selenium	4.00	U	W	F
7440-22-4	Silver	5.00	U		P
7440-23-5	Sodium	38.00	U		P
7440-28-0	Thallium	4.00	U		F
7440-62-2	Vanadium	2.00	U		P
7440-66-6	Zinc	5.00	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613424.0511

NESTINGHOUSE/HANFORD

1

INORGANIC ANALYSIS DATA SHEET

SAMPLE NUMBER:

B01400

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

Lab Code: SKINER Case No.: N1-09-170SAS No.: SDG No.: B01400

Matrix (soil/water): WATER Lab Sample ID: 10068-01S

Level (low/med): LOW Date Received: 10/09/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	32.10	B		P
7440-36-0	Antimony	14.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	1.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	1.00	U		P
7440-70-2	Calcium	138.00	B		P
7440-47-3	Chromium	2.00	U		P
7440-48-4	Cobalt	2.00	U		P
7440-50-8	Copper	2.00	U		P
7439-89-6	Iron	15.40	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	14.50	B		P
7439-96-5	Manganese	1.00	U		P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	5.00	U		P
7440-09-7	Potassium	73.00	U		P
7782-49-2	Selenium	4.00	U	W	F
7440-22-4	Silver	5.00	U		P
7440-23-5	Sodium	127.00	B		P
7440-28-0	Thallium	4.00	U		F
7440-62-2	Vanadium	2.00	U		P
7440-66-6	Zinc	5.00	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

ATTACHMENT 1 DATA TABLE

Collection date: 9/20/91

Customer I.D.	TMA/Norcal Group No. 9547	Analysis	Results pCi/L ± 2 σ	
B014Q0	1	Gross Alpha	0 ± 3	
		Gross Beta	0 ± 1	
		^{3}H	<1.3	E+02
		^{90}Sr	<1	E+00
		^{234}U	<1	E-01
		^{235}U	<1	E-01
		^{238}U	<1	E-01
		Gamma Scan:		
		^{40}K	<9.410	E+00
		^{51}Cr	<1.217	E+02
		^{60}Co	<1.178	E+01
		^{65}Zn	<1.674	E+01
		^{134}Cs	<9.889	E+00
		^{137}Cs	<7.412	E+00
		^{226}Ra	<1.495	E+01
		^{228}Th	(1.547 ± 1.250)	E+01
		^{232}Th	<4.646	E+01
B014Q1	2	Gross Alpha	1 ± 2	
		Gross Beta	0 ± 1	
		^{3}H	<2.0	E+02
		^{90}Sr	<1	E+00
		^{234}U	<1	E-01
		^{235}U	<1	E-01
		^{238}U	<1	E-01
		Gamma Scan:		
		^{40}K	(2.138 ± 1.394)	E+02
		^{51}Cr	<1.431	E+02
		^{60}Co	<1.075	E+01
		^{65}Zn	<1.884	E+01
		^{134}Cs	<9.757	E+00
		^{137}Cs	<8.991	E+00
		^{226}Ra	<2.492	E+01
		^{228}Th	<1.365	E+01
		^{232}Th	<6.917	E+01

CASE NARRATIVE

1. Project FF1/315-5 PT 1 Water Sample results of analysis are reported. The sample ID's are:

Customer Sample ID	TMA/Norcal Group No.
B014Q0	9547-1
B014Q1	9547-2

2. The analysis reported are: Gross alpha, gross beta, ^{3}H, ^{90}Sr, isotopic uranium, and gamma scan.

3. Results are reported pCi/L sample with 2 σ errors.

4. Sample numbers 9529-2, 3, 4, 5, and 6, 9539-1, 2, and 3, 9547-1 and 2, 9555-1, 2, 3, and 4 were processed together.

5. The following QC samples consisting of Laboratory Control, Blanks, and Replicates were processed with this batch:

   a. 9529-7 (Laboratory Control Sample) was processed for gross alpha and beta, ^{90}Sr, ^{99}Tc, isotopic uranium, isotopic plutonium, and gamma scan.

   b. 9529-16 (Laboratory Control Sample) was processed for total uranium.

   c. 9547-4 (Laboratory Control Sample) was processed for ^{3}H by distillation.

   d. 9529-8 (Blank) was processed for gross alpha and beta, ^{90}Sr, ^{99}Tc, isotopic uranium, isotopic plutonium, and gamma scan.

   e. 9529-15 (Blank) was processed for isotopic uranium.

   f. 9547-5 (Blank) was processed for ^{3}H by distillation.

   g. 9529-9 (Replicate) was processed for gross alpha and beta, ^{90}Sr, ^{99}Tc, isotopic uranium, isotopic plutonium, and gamma scan.

   h. 9547-6 (Replicate) was processed for ^{3}H by distillation.

   i. 9547-6 (Replicate) was processed for gross alpha, gross beta, ^{90}Sr, isotopic uranium, and gamma scan.

   j. 9555-11 (Laboratory Control Sample) was processed for total uranium.

k. 9555-10 (Blank) was processed for total uranium.

l. 9555-4A (Replicate) was processed for total uranium.

6. Sample number 9529-4, 5, and 6 were found to contain high uranium and ^{99}Tc concentration. Reanalysis had to be done on these on a smaller sample aliquot and a set of separate QC sample consisting of Lab Control, Blank and replicate.

a. 9529-12 (Laboratory Control Sample) was processed for isotopic uranium.

b. 9529-11 (Laboratory Control Sample) was processed for ^{99}Tc.

c. 9529-13 (Blank was processed for isotopic uranium.

d. 9529-14 (Replicate) was processed for isotopic uranium.

e. 9529-17 (Blank) was processed for total uranium.

f. 9529-10 (Replicate) was processed for ^{99}Tc.

7. Analysis, reanalysis, and reworks, etc.

Matrix Problems: No particular problems were observed which could be attributed to sample matrix except that samples 9529-4, 5, and 6 were high in uranium and ^{99}Tc. Reanalysis of these samples had to be done by taking smaller aliquots.

Gross Alpha and Gross Beta Analyses: No abnormalities were observed.

Strontium Analyses: The average yield for 15 analyses was 68%. The lowest yield was 32% and the highest was 81%. No abnormalities were encountered.

Technicium Analyses: The average yield for 6 analyses was 47%. The lowest yield was 20% and the highest was 64%. No abnormalities were encountered.

Uranium Analyses: The average yield for 14 analyses was 60%. The lowest yield was 43% and the highest was 80%. No abnormalities were encountered.

Plutonium Analyses: The average yield for 6 analyses was 27%. The lowest yield was 12% and the highest was 46%. No abnormalities were encountered.

Total Uranium Analyses: Total uranium was analyzed by Laser fluorometer. The analysis was verified by standard additional with excellent results.

Tritium Analyses: Tritium was analyzed by Liquid Scintillation Counting of the distillate.

9613424.0515

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: W. SETZER

Company Contact: Jon D. Fancher — Telephone: (509) 376-2081

Project Designation/Sampling Locations: 300-FF-1/315-5 PT-1 — Collection Date: 9-20-91

Ice Chest No.: SMC-28 — Field Logbook No.: WHC-N-557

Bill of Lading/Airbill No.: — Offsite Property No.: W91-0383# 34

Method of Shipment: AIR

Shipped to: ~~WESTON~~ TMA/NORCAL (WS 9-20-91) — PROJECT NO. 91-016

Possible Sample Hazards/Remarks: None detected with field instruments.

Sample Identification

1) B0140 3 40ml Glass septum: VOA

1000ml Amber Glass: PCB's

2 250ml Plastic: Anions (F, SO4, NO2, NO3); pH

250ml Plastic: Ammonium (preserved with H2SO4)

1000ml Plastic: CLP Metals (preserved with HNO3)

4000ml Plastic: Gross Alpha; Gross Beta; Co-60; Sr-90; Cs-137; U-235; U-238 (preserved with HNO3)

250ml Glass septum: Tritium

B0149 40ML GLASS SEPTUM: CLP: VOA

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

Relinquished by:	Received by:	Date/Time:
William A Setzer	Kermit Blum	9-26-91 1030
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: Samples immersed in water.

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

9613424.0516

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: W. SETZER

Company Contact: Jon D. Fancher

Telephone: (509) 376-2081

Project Designation/Sampling Locations: 300-FF-1/316-5 PT-1

Collection Date: 9-20-91

Ice Chest No.: SML-28

Field Logbook No.: WHC-N-557

Bill of Lading/Airbill No.:

Offsite Property No.: W91-0383# 39

Method of Shipment: AIR

Shipped to: ~~WESTON~~ WDS 9-20-91 TMA/NORCAL

PROJECT NO. 91-016

Possible Sample Hazards/Remarks: None detected with field instruments.

Sample Identification

1) B014Q1 3 40ml Glass septum: VOA

1000ml Amber Glass: PCB's

2 250ml Plastic: Anions (F, SO4, NO2, NO3); pH

250ml Plastic: Ammonium (preserved with H2SO4)

1000ml Plastic: CLP Metals (preserved with HNO3)

4000ml Plastic: Gross Alpha; Gross Beta; Co-60; Sr-90; Cs-137; U-235; U-238 (preserved with HNO3)

250ml Glass septum: Tritium

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
William Setzer	Kermit Blum	9-26-91 1030
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:

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

9613424.0517

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector W.L. SETZER Date Sampled 9-20-91 Time 1000 hours

Company Contact J.D. FANCHER Telephone (509) 376-2081

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B0W29	(1) GLASS SEPTUM 40ml	WATER (TRIP BLANK)	CLP: VOA
B0W90	(3) GLASS SEPTUM 40ml	WATER (EQUIPMENT)	VOA
	(1) AMBER GLASS 1000ml	WATER (EQUIPMENT)	PCB's
	(2) PLASTIC 250ml	WATER (EQUIPMENT)	ANIONS (F, SO_4, NO_2, NO_3) PH
	(1) PLASTIC 250ml	WATER (EQUIPMENT)	AMMONIUM (PRESERVED WITH H_2SO_4)
	(1) PLASTIC 1000 ml	WATER (EQUIPMENT)	CLP METALS (PRESERVED WITH HNO_3)
	(1) PLASTIC 4000 ml	WATER (EQUIPMENT)	GROSS ALPHA, GROSS BETA, Co-60, Sr-90, Cs-137, U-235, U-238
	(1) GLASS SEPTUM 250ml	WATER (EQUIPMENT)	TRITIUM
B0W91	(3) GLASS SEPTUM 40ml	WATER (FIELD BLANK)	VOA
	(1) AMBER GLASS 1000ml	WATER (FIELD)	PCB's
	(2) PLASTIC 250ml	WATER (FIELD)	ANIONS (F, SO_4, NO_2, NO_3) PH
	(1) PLASTIC 250ml	WATER (FIELD)	AMMONIUM (PRESERVED WITH H_2SO_4)
	(1) PLASTIC 1000 ml	WATER (FIELD)	CLP METALS (PRESERVED WITH HNO_3)
	(1) PLASTIC 4000 ml	WATER (FIELD)	GROSS ALPHA, GROSS BETA, Co-60, Sr-90, Cs-137, U-235 U-238 (PRESERVED WITH HNO_3)
	(1) GLASS SEPTUM 250ml	WATER (FIELD)	TRITIUM

Field Information** Samples collected from borehole PT-1

Special Handling and/or Storage Keep chilled on ice

Possible Sample Hazards None detected with field instruments.

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 9-26-91

Analysis Required

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

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

A-6000-406 (05/90)

EMORY WORLDWIDE 9613424.0518
Overnight Delivery

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
Westinghouse Hanford Company		W91-0383# 39

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Env. Eng. & Geotech.	EFSG	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	Robert Fox
	Full Title: Project Coordinator

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 108 lb.	RUBBERMAID SML-16 poly cooler. Contains soil samples that are double-bagged and packed in ice and vermiculite. Samples are nonhazardous. SAMPLE # B014Q2 B014Q3, B014Q4, B01016	N/A
1 78 lb	RUBBERMAID SML-28 Poly cooler. CONTAINS WATER SAMPLES that ARE DOUBLE-bagged AND PACKED IN WET ICE AND VERMICULITE. Sample #: B014P9, B014Q0, B014Q1	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 300-FF-5

Bill of Lading # 2474252583

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

Location of Property (Area & Bldg.)	Contact	Phone
300 Area	J. D. Fancher	376-2081

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
~~9-23-91~~ 9-24-91	EC4D3 81241	N/A

Originated By	Date	Authorized By	Date
relinquished By Willis Setzer	9-23-91	G F Gould	9-23-91
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
			9-23-91

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
J Demarest				
Date 9/24/91				

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

20

54-3000-479 (09/89)

9613424.0519

DON'T SAY IT --- *Write It!*

DATE: Februray 17, 1993

TO: File B01016-TMA-027
B01017-TMA-365
B01025-TMA-028
B01032-TMA X00158
B014Q0-TMA-037
B014Q5-TMA-038
9109L603-WES-277
9109L796-WES-184

FROM: S.D.L.A.

Telephone: 2-3206

cc:

SUBJECT: VALIDATION DOCUMENTATION

Validation documentation for the above mentioned data packages is filed with Data Package 9108L329.