9613473.2914

START

B07 FF7-TMA-380

0045183 /69

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

RECORDS CENTER

FEB 1993
RECEIVED
OSM DMO

February 2, 1993

SENT BY FEDERAL EXPRESS

Ref. TMA/Norcal N2-10-060-7106

Mr. John Bourgeault
Westinghouse Hanford Company
2355 Stevens Drive
MSIN H4-23
345 Hills Street/300 Area
Richland, WA 99352

Dear Mr. Bourgeault:

Enclosed on the Summary Data Section, are the gross alpha, gross beta, ^{3}H, ^{90}Sr, ^{99}Tc, total uranium, isotopic plutonium, and gamma scan results for the water samples from 200-BP-1 Location we received 2 October 1992. The QA/QC results are also given in the Summary Data Section. The Summary Data Section is numbered pages 1 to 69, and the appendices are numbered pages 70 to 746.

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 and 2
Appendices

SEP 1996
RECEIVED
EDMC

SDG	7106	Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar	Contract	MBH-SVV-069262

CASE NARRATIVE

1.0 GENERAL

Water sample results from 200-BP-1 Location (TMA/Norcal Group 7106) are reported herein. TMA/Norcal Group 7106 is comprised of twenty samples listed on the Chain-of-Custody documents and is identified as sample numbers 1 through 20.

1.1 CHAINS-OF-CUSTODY

This report includes data from samples delivered under Chain-of-Custody documents Field Logbook No. WHC-N-4461 and EFL-1020.

1.2 SAMPLE VOLUME

One 4 L and two 250 mL glass bottles containing the samples were received for the analysis.

1.3 MISSING SAMPLES

All samples were accounted for in an undamaged condition.

1.4 HOLDING TIMES

Samples were collected between 9/30/92 and 10/08/92 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 sample numbers 7106-21 through 27.

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 the nuclides were good except for gross alpha which had a recovery of 73% which did not pass the 3 σ total limits. The gross alpha recovery with associated errors was, however, within the 3 σ limits.

SDG	7106		Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar		Contract	MBH-SVV-069262

CASE NARRATIVE

2.2 BLANKS

MDA's for all the analyses meet the RDL requirements. The negative result of gross beta was underlined.

2.3 REPLICATES

Results were satisfactory for all replicate analyses except for gross beta. The replicate results of gross beta were both low level, therefore, less precise and have an uncertainty beyond counting statistics. We will continue the investigation by realiquoting several times to test the reproducibility. High ^{99}Tc MDA of sample number 7106-23 (replicate of 7106-1) was due to low chemical yields. The high ^{59}Fe MDA was 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 (2 ± 1) pCi/L. Positive gross alpha concentration above RDL was found in sample numbers 7106-4, 8, 11, 16, 18, and 19. The results of the remaining samples were less than MDA. The residue on the planchets of sample numbers 7106-2, 3, 8, 12, 17, and 20 were higher than the nominal residue weight limit of 5-150 mg. The MDA of sample number 7106-12 was higher than RDL due to higher residue weight.

3.2 Gross Beta Analyses: The average MDA for gross beta was (2 ± 0.4) pCi/L. Positive gross beta concentration above RDL was found in all samples except for sample numbers 7106-1 and 2. Again, the residue on the planchets of sample numbers 7106-2, 3, 8, 12, 17, and 20 were higher than the nominal residue weight limit of 5-150 mg.

3.3 Tritium Analyses: The average MDA for twenty-three analyses was (200 ± 0) pCi/L. Positive ^{3}H concentration above RDL was found in all the samples except in sample numbers 7106-1, 2, 3, 8, 13, 14, 15, 18, and 19.

3.4 Strontium-90 Analyses: The average yield for twenty-three analyses was (58 ± 25)%. The lowest yield was 15% and the highest was 76%. The average MDA was (1 ± 1) pCi/L. Positive ^{90}Sr concentration above the RDL was not found in any of the samples. Sample number 7106-9 had MDA above RDL due to low chemical yield.

SDG	7106	Client	Westinghouse Hanford
Contact	Dinkar P. Kharkar	Contract	MBH-SVV-069262

CASE NARRATIVE

3.0 ANALYTICAL NOTES cont'd.

3.6 Technicium-99 Analyses: The average yield for twenty-five analyses was (45 ± 23)%. The lowest yield was 31% and the highest was 69%. The average MDA was (6 ± 5) pCi/L. Positive concentration above RDL was found in all samples except sample numbers 7106-1, 2, 6, 7, 8, 13, 14, 15, and 19. The MDA's for sample numbers 7106-3, 4, 6, 7, 8, 11, 12, 15, 18, and 20 were higher than the RDL due to low chemical recoveries.

3.7 Total Uranium Analyses: The average yield for twenty-three analyses was (0.07 ± 0) μg/L. Positive concentration of uranium was found in all samples.

3.8 Plutonium-238, 239/240 Analyses: The average yield for twenty-three analyses was (55 ± 21)%. The lowest yield was 37% and the highest was 74%. The average MDA was (0.06 ± 0.04) pCi/L. Positive plutonium concentrations above the RDL was not found in any of the samples. All samples were below MDA. Sample number 7106-1, 4, 7, 9, 14, 15, 16, 17, 18, 19, and 20 had higher MDA's either due to a low chemical recovery or a high background.

3.9 Gamma Scan Analyses: Gamma scan analysis found positive concentration of ^{60}Co in sample numbers 7106-12 and 17. Positive concentration of gamma nuclides above RDL was not found in any other samples.

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

EMERY WORLDWIDE — A CF Company

SERVICES **

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ · XX AM ☐ PM ☐ · Second Day ☐ Saturday Delivery ☐

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

E Shipper's Account Number: 8502815865

Date: 10-08-92 · Origin: PSC · Shipment Number: 252156834 6

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

To:
DELORES SANCHEZ
TRA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA ☐ Canada ☐ · Hold for Pick Up ☐

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: W81232/p25CA/PL3EA W93-0-0001 · Zip: 99352

E Consignee's Account Number · Zip: 94804

Description	Pcs	L	W	H	Total Pieces	Total Weight (In Lbs.)
# 15 & #16 2 COOLER ID: SML39 53# SML-302 72# WATER SAMPLES	2	19	16	17	2	125

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

Declared Value $

252156834 6

Remarks: OVERNIGHT DELIVERY SIGNATURE SECURITY SERVICE

Shipper's Signature

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 ☒

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

Base Charge · Total Transportation Charges · Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

9613473.2918

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

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 ☐

Shipper's Account Number: E 850281585

Date: 10-07-92 | Origin: PSC | Shipment Number: 252156815 9

From:
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐
Customer's Reference Numbers: W81231 PL3E9 W93-0-0001613
Zip: 99352

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA
Hold for Pick Up ☐ Canada ☐
Consignee's Account Number: E
Zip: 94804

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.

Description	Pcs.	L	W	H	Total Pieces	Total Weight (in Lbs.)
1 COOLER ID SML-213 WATER SAMPLES B07FF8	1	27	16	17	1	59

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

Declared Value $

252156815 9

Remarks: OVERNIGHT DELIVERY SIGNATURE SECURITY SERVICE

Shipper's Signature: J. Oenaue 10/5/92

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 ☒

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

Base Charge

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

BOX 9

08808872

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EMERY WORLDWIDE — A CF Company

FORM OF PAYMENT

Check ☐ GBL ☐ ☐ FCCOD ☐

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

Shipper's Account Number: E 850281585

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: 90-05-92 | Origin: PSC | Shipment Number: 252156830 2

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

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA ☐ Canada
Hold for Pick Up ☐

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: W81232 PL3EA W93-0-0001 #8
Zip: 99352
Consignee's Account Number: E
Zip: 94804

Description	Pcs	L	W	H	Total Pieces	Total Weight (in Lbs.)
2 COOLER ID: ALFA-6 92# IT-47 49# WATER SAMPLES	2	11	16	17	2	141

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

Declared Value. $

252156830 2

Remarks: OVERNIGHT DELIVERY
SIGNATURE SECURITY SERVICE

Shipper's Signature

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 ☐

International Shipments: Free Domicile ☐ — Commodity Code

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

International Customs Value — International Insurance

Base Charge — Total Transportation Charges — Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

9613473.2920

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

E 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: 10-06-92 | Origin: PSC | Shipment Number: 252156827 T

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

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA 94804
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: W81232 PL3EA W93-0-0001#10 | Zip: 99352

E Consignee's Account Number

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
1 COOLER ID SML 223 WATER SAMPLES B07FF7, B07Fg1, B07F69	1	29	16	17	1	66

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

Declared Value $

252156827 T

Remarks: OVERNIGHT DELIVERY SIGNATURE SECURITY SERVICE

Shipper's Signature: X J. Vlessaunt 10/6/92

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 ☒

International Shipments: Free Domicile ☐ | Commodity Code

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

International Customs Value | International Insurance

Base Charge _____ | Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO- $

1-OAK-A

Terms and Conditions on Back

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FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

E Shipper's Account Number: A50281585

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
10-01-92	PSC	252156795 0

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

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA
Canada ☐
Hold for Pick Up ☐

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: PB7D1/PL3EA/WB1232
Zip: 99352
E Consignee's Account Number: 94804

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
W93-0-0001-2 & -4 2 COOLER ID SML 157 88# SML 178 74# WATER SAMPLES	2	1	16	17	2	160

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

Declared Value $

252156795 0

Remarks: OVERNIGHT DELIVERY
SIGNATURE SECURITY SERVICE

Shipper's Signature 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 ☒

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

Base Charge

Total Transportation Charges

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

1-OAKA

Terms and Conditions on Back

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9613473.2923

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper [X] Bill to Consignee ☐ Third Party Billing ☐

E Shipper's Account Number 850281585

EMERY WORLDWIDE — A CF Company

SERVICES **

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM ☐ PM ☐ Second Day [X] Saturday Delivery

INTERNATIO: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐

Date 10-09-92 Origin PBC Shipment Number 252156728

From:
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
BLDG 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐
Customer's Reference Numbers: PL3EA W81232 W93-0-0001#18
Zip 99352

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA
Hold for Pick Up ☐ Canada ☐
E Consignee's Account Number
Zip 94804

Tariff Dest.
Check to Shipper $

EMERY WOR will accept C check with being assun Shipper, inc but not limi non-paymen and misrepr

Description: 1 COOLER ID SML-1B WATER SAMPLES

Pcs.	L	W	H	Total Pieces	Total Weight (in Lbs.)
1	27	16	17	1	77

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

Declared $

252156728T

Remarks: SATURDAY DELIVERY SIGNATURE SECURITY SERVICE

Shipper's Signature 10/9/92

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 ☒

International Shipments: Commodity Code | Third Party Account Number | Third Party Account Number

EMERY WORLDWIDE — A CF Company

SIGNATURE AND TALLY RECORD

60029-46 (8/89) Litho USA

DATE: 10-09-92 SHIPMENT NO.: 252156728 T
SHIPPER: WESTINGHOUSE SHIPPING DEPT (509) 376-6
REFERENCE NO.: W93-0-0001#18

SHIPPER NAME AND ADDRESS
WESTINGHOUSE SHIPPING DEPT (509) 376-6665
G2-06 U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD COMPANY
2355 STEVENS DRIVE 1163 BUILDING
PO BOX 1970
RICHLAND WA 99352

CONSIGNEE NAME AND ADDRESS
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA 94804

OK

Pieces	Weight	Description/Marks	Emery Authorization No.
1	77 LBS	COOLER ID SML-1B WATER SAMPLES	

EACH PERSON HANDLING OR TAKING CUSTODY OF THIS SHIPMENT MUST SIGN AND COMPLETE THE INFORMATION BELOW

Name of Person/Company	Transship Point/Destination	Signature of Person Accepting Custody	Time/Date
1.			
2.			
3.			
4.			
5.			
6. Joe DiSpigetta EMW	OAK/Rich	(Stephens)	10/10 13
7.			
8.			

SPECIAL HANDLING INSTRUCTIONS

CONSIGNEE COPY

9613473.2924

Check ☐ GBL ☐

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

Shipper's Account Number E 850281585

EMERY WORLDWIDE — A GF Company

SERVICES **

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ A.M. ☐ PM ☐ Second Day ☐ Saturday Delivery ☒

INTERN: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐

Date 10-02-92 Origin PSC Shipment Num 2521568

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

To:
DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA Canada ☐
Hold for Pick Up ☐

Tariff De

Check to Shipper $

EMERY will acc check w being a Shipper but not non-pay and mis

Customer's Reference Numbers: W81232 PLEEA W93-0-0001#5
Zip: 99352
Consignee's Account Number: E
Zip: 94804

Description	Pcs.	L	W	H	Total Pieces	Total Weight (in Lbs.)
1 COOLER ID SML 196 WATER SAMPLES	1	27	16	17	1	65

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

Dec $

2 5 2 1 5 6 8 1 1 5

Remarks
SATURDAY DELIVERY
SIGNATURE SECURITY SERVICE

Shipper's Signature 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 ☒

International Shipments: Free Domicile ☐ Commodity Code
Third Party Account Number mandatory for Third Party Billing. E
Third Party Account Number

Base Charge
International Customs Value
International Insurance
Total Transportation Charges
Other Charges/Advance at Origin ☐ OC/AO- $

I-OAR

Terms and Conditions on Back

WESTINGHOUSE SHIPPING DEPT (509) 376-6665
G2-06 U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD COMPANY
2355 STEVENS DRIVE 1163 BUILDING
PO BOX 1970
RICHLAND WA 99352

DELORES SANCHEZ
TMA/NORCAL
2030 WRIGHT AVENUE
RICHMOND CA 94804

Pieces	Weight	Description/Marks	Emery Authorization No.
1	65 LBS	COOLER ID SML 196 WATER SAMPLES	

EACH PERSON HANDLING OR TAKING CUSTODY OF THIS SHIPMENT MUST SIGN AND COMPLETE THE INFORMATION BELOW

Name of Person/Company	Transship Point/Destination	Signature of Person Accepting Custody	Time/Date
1.			
2.			
3. Ted Vann EWW	PSC	Ted Vann	1600 10-2
4. K Rowden QX	PSC	K Rowden	16:10 10-
5. J Miles	HQ		10-3
6.			
7.			
8.			

SPECIAL HANDLING INSTRUCTIONS

DESTINATION TERMINAL COPY

9613473.2925

OVERNIGHT DELIVERY

Signature Security Service

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W12 - 0-0001 - 16

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Env. Eng. & Tech.	Geosciences	Geochem. & Hydrochem.

The following items are to be shipped from ☐ Contractor ☐ Vendor

Routing ☐ Contractor ☐ Vendor

Shipped to TMA/NORCAL
2030 Wright Ave.
Richmond, CA 94804

Off-site Custodian Delores Sanchez

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: ~~B0 7G~~ B07FG4 B07FH0 B07FF4 Cooler ID: SML-302 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
~~1 lbs.~~	~~Sample #:~~ ~~Cooler ID:~~ ~~Polycooler with groundwater samples packed in wet ice and vermiculite~~ JTS 10/5/92	~~N/A~~

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 300 Areas.

10-5-92

Bill of lading # 2571166546

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]	362	10-9-92

Location of Property (Area & Bldg.)	Contact	Phone
~~300 Area~~ 200BP1	PH Butcher	(509) 376-5045

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
10/5/92	W81232/~~[illegible]~~ PL3EA	

Originated By	Date	Authorized By	Date
PH Butcher		AS [illegible] ~~PH Butcher~~	

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[illegible]	10/8/92

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[illegible]				
Date 10-5-92				

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

54-3000-479 (09/89)

9613473.2926

SATURDAY DELIVERY

Signature Security Service

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W93-0-0001-5

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Env. Eng. & Tech.	Geosciences	Geochem. & Hydrochem.

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing [illegible] ☒ Contractor ☐ Vendor

Shipped to TMA/NORCAL
2030 Wright Ave.
Richmond, CA 94804

Off-site Custodian ~~Dolores Sanchez~~

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 65 lbs.	Sample #: 30 7FH1 30 7FK4 30 7FK5 Cooler ID: SML-146 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
~~1 lbs.~~	~~Sample #:~~ ~~Cooler ID:~~ AJ Simon 10/2/92 ~~Polycooler with groundwater samples packed in wet ice and vermiculite~~	~~N/A~~

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the ~~100 Areas~~ AJS 10/2/92 200 Areas

Bill of lading # 2521565115

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
D.J. Phipps	361	10-2-92

Location of Property (Area & Bldg.)	Contact	Phone
~~100~~ 200-BP-1	PH Butcher	(509) 376-5045

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
10/2/92	WB1232 / PL3EA	

Originated By	Date	Authorized By	Date
P.H. Butcher		AJ Simon	10/2/92

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
J. Demaurt				
Date 10-2-92				

DISTRIBUTION

White, Green, Yellow – Property Management
Canary – Person

Shipping Operation – Sign all Copies and Forward to:
Property Management Green – Property Control Custodian (Issuing Office)
Beige Pink – Originator

54-3000-479 (09/89)

9613473.2927

Icechest Temperature Log

Use one form per shipment.
Refer to Thermometer Correction Log for correction factor.

Customer: WHC Date: 10-12-92

icechest # or description	thermometer reading	thermometer number	correction factor	actual temperature *
SML-1B	2	118	-1	1

* After 20 minutes if thermometer is not already present.
Temperature is in degrees centigrade.

Technician: KB

ICETEMP.TXT

9613473.2928

Icechest Temperature Log

Use one form per shipment.
Refer to Thermometer Correction Log for correction factor.

Customer: Hanford Date: 10-6-92

icechest # or description	thermometer reading	thermometer number	correction factor	actual temperature *
ALFA 6	3c	#106	+1c	4c
IT 47	3c	#110	0	3c

* After 20 minutes if thermometer is not already present.
Temperature is in degrees centigrade.

Technician:_____

ICETEMP.TXT

9613473.2929

Icechest Temperature Log

Use one form per shipment.
Refer to Thermometer Correction Log for correction factor.

Customer: HANFORD Date: 10/9/92

icechest # or description	thermometer reading	thermometer number	correction factor	actual temperature *
SMC.39	4c	118	-1c	3c
SMC-302	3c	110	0	3c

* After 20 minutes if thermometer is not already present.
Temperature is in degrees centigrade.

Technician:_____

ICETEMP.TXT

TMA/ARLI
OFF-HOUR RECEIVING OF EPA/CLP SAMPLES

Form: SCP-6-2
Rev. No. 01
Rev. Date: 7/29/91
Page No. _____

CONTAINER ID	RECEIVED		RELINQUISHED		TRANSPORTATION MODE	AIR BILL #	CONTAINER CONDITION		CONTAINER SEAL		HOLDING LOCATION
	DATE	TIME	DATE	TIME			INTACT	NOT INTACT	INTACT	NOT INTACT	
White Cooler	DATE 10-10-92	TIME 1:30	DATE	TIME	EMERY	252-156 7287	X		X		Refrig b
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								
	DATE	TIME	DATE	TIME							
	BY		BY								

96-0473.2030

9613473.2931

N2-10-016

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 9/30/92

Ice Chest No. SML-178

Field Logbook No. WHC-N-4461

Bill of Lading/Airbill No. 2521967950

Offsite Property No. ~~W92~~- KT 10/1/92 W93-0-0001-1

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FG5

1, 1L, P, WATER, Tc-99(HCl)

~~1, 500ml~~, Gs, WATER, TRITIUM

KRC 9/30/92 1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO_3)

2, 250ml, Gs, WATER, TRITIUM

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

Relinquished by:	Received by:	Date/Time:
Kathy A. Lee K.A. Lee	K. Trapp / K. Trapp	10/1/92 1000
K. Trapp / K. Trapp	Kathy E. Yamamoto	10-2-92 11:30

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

070

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

9613473.2932

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 9/30/92 Time 1345 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07F65 ✓	1; 1L; P	WATER	Tc-99
↓	✓ 2; 250mL; Gs	WATER	TRITIUM
↓	✓ 1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-4
			BOL: 252 156 7950
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Ebby G. Yamamoto Title Sample Control Tech. Date 10-2-92

Analysis Required 071

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

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

A-6000-406(05/

9613473.2933

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 9/30/92

Ice Chest No. SML-178

Field Logbook No. WHC-W-4461

Bill of Lading/Airbill No. 2521567950

Offsite Property No. ~~W92~~ KT 10/1/92 W93-0-0001-4

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07965
- 1, 1L, P, WATER, TAL METALS+Bi(HNO3) (UNFILTERED)
- 1, 500ml, G, WATER, ANIONS(PO4,SO4,Cl,F)
- 1, 250ml, P, WATER, NO2/NO3 (H2SO4)
- 1, 1L, P, WATER, ALKALINITY/TDS
- 1, 1L, P, WATER, CLP-CYANIDE(NaOH)

B07966
- 1, 1L, P, WATER, TAL METALS+Bi(HNO3) (FILTERED)

B07967
- 3, 40ml, Gs, WATER, CLP-VOA

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

Relinquished by:	Received by:	Date/Time:
Kathy D. Lee K.D. Lee	K. Trapp / K. Trapp	10/1/92 1000
K. Trapp / K. Trapp	Elby H. Yamamoto	10-2-92 11:30

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: Bubbles were found on 2 vials of B07967

072

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

9613473.2934

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 9/30/92 Time 1341 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
0079L5	1; 1L; P;	WATER	TAL METALS + Bi (HNO3); UNFILTERED
	1; 500mL; G	WATER	ANIONS (PO4, SO4, Cl, F)
	1; 250mL; P	WATER	NO2-NO3 (H2SO4)
	1; 1L; P	WATER	ALKALINITY, TDS
	1; 1L; P	WATER	CLP-CYANIDE (NaOH)
0079L6	1; 1L; P	WATER	TAL METALS + Bi (HNO3); FILTERED
0079L7	3; 40mL; Gs	WATER	CLP-VOA 2 vials 6 bottles
			OPC: W92-0-0001-4
			BOL: 2521567950
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Technician Date 10-2-92

Analysis Required

073

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

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

A-6000-406(05/9

9613473.2935

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 9/30/92

Ice Chest No. SML-178

Field Logbook No. WHC-N-4461

Bill of Lading/Airbill No. 2521567950

Offsite Property No. ~~W92~~ KT 10/1/92 W92-0-0001-4

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7FM3

1, 1L, P, WATER, Tc-99(HCl)

~~1, 500ml, Gs, WATER, TRITIUM~~

LOC 9/30/92 1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO_3)

2, 250ml, GS, WATER, TRITIUM

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: K.D. Lee	Received by: K. Trapp / K. Trapp	Date/Time: 10/1/92 1000
Relinquished by: K. Trapp / K. Trapp	Received by: Eby G. Hamamoto	Date/Time: 10-2-92 11:30
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

074

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

9613473.2936

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled _____ Time _____ hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FM3	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-4
			BOL: 2521567990
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech. Date 10-2-92

Analysis Required _____

075

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

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

A-6000-406(05/90)

9613473.2937

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/1/92

Ice Chest No. SML-196

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 2521568115

Offsite Property No. W92-0-0001-5

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FH1

1, 1L, P, WATER, Tc-99(HCl)

AJS 10/1/92 ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

2, 250ml

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: C. Celiberti C. CELIBERTI	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/2/92 1014
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Elby H. Yamamoto	Date/Time: 10-5-92 *
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

* Received @ TMA/NORCAL 10-3-92 ; opened 10-5-92 · KB

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

9613473.2938

TimA

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/1/92 Time 0950 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FH1	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-5
			BOL: 2521568115
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Elky K. Yamamoto Title Sample Control Tech. Date 10-5-92

Analysis Required

077

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

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

A-6000-406(05/9

9613473.2939

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-1-92

Ice Chest No. SML - 196

Field Logbook No. WHC-N-4461

Bill of Lading/Airbill No. 2521568115

Offsite Property No. W92-0-0001-5

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FK8

BW 10-1-92 1, 1L, P, WATER, Tc-99(HCl)

~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

2, 250 mL

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Bill Whitten B. WHITTEN	Received by: A J SIMPSON AJ Simpson	Date/Time: 1019 10/2/92
Relinquished by: A J SIMPSON AJ Simpson	Received by: Elky H. Yamamoto	Date/Time: 10-5-92 *
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

* Received @ TMA/NORCAL 10-3-92; opened 10-5-92 · KB

078

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

9613473.2940

TMA

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/1/92 Time 1020 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B0 7FK8	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-5
			BOL: 2521568115
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Ebby K. Yamamoto Title Sample Control Tech. Date 10-5-92

Analysis Required

079

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

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

A-6000-406(05/9

9613473.2941

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/1/92

Ice Chest No. SML-196

Field Logbook No. WHC-N-4461

Bill of Lading/Airbill No. 2521568115

Offsite Property No. W92-0-0001-5

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7FK9

1, 1L, P, WATER, Tc-99(HCl)

KDL 10/1/92 ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO_3)

2, 250ml

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: K.D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/2/92 1017
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Elby H. Yamamoto	Date/Time: 10-5-92 *
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

* Received @ TMA/NORCAL 10-3-92; opened 10-5-92. KB

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

080

9613473.2942

TMA

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/1/92 Time 1130 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
7FK9	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-8001-5
			BOL: 252156 8115
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech Date 10-5-92

Analysis Required _____

081

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

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

A-6000-406(05/90)

9613473 2943

N2-10-047

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-2-92

Ice Chest No. Alfa-6

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 2521568 302

Offsite Property No. ~~W92~~ KT 10/5/92 W93-0-0001-8

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FH6

1, 1L, P, WATER, Tc-99(HCl)

2,250ml ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

LDW 10-2-92

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: L.D. Walker	Received by: K. Trapp / K. Trapp	Date/Time: 10/5/92 0900
Relinquished by: K. Trapp / K. Trapp	Received by: Elby H. Yamamoto	Date/Time: 10/6/92 11:00
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

9613473.2944

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/2/92 Time 1010 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FH6	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-C-0001-~~302~~ 8 KT 10/5/92
			BOL: 2521568302
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech. Date 10-6-92

Analysis Required

C83

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

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

A-6000-406(05/9

9613473.2945

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-2-92

Ice Chest No. Alfa-6

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 2521569~~291~~ 302 KT 10/5/92

Offsite Property No. ~~W92~~ KT 10/5/92 W93-0-0001-8

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7FH7

1, 1L, P, WATER, Tc-99(HCl)

1, 250ml ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

KT 10/5/92

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

Relinquished by:	Received by:	Date/Time:
L.D. Walker LD Walker	K. Trapp / K. Trapp	10/5/92 0930
K. Trapp / K. Trapp	Eley & Yamamoto	10/6/92 11:00

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613473.2946

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled ~~10/5~~ / 10/2/92 KT Time 1230 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FH7	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-8
			BOL: 252156~~8291~~ 302 KT 10/5/92
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech. Date 10-6-92

Analysis Required

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

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

085

A-6000-406(05/9

9613473.2947

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-2-92

Ice Chest No. ALFA-6

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 2521568302

Offsite Property No. ~~W92~~ KT 10/5/92 W93-0-0001-8

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FH8

1, 1L, P, WATER, Tc-99(HCl)

2,250ml ~~1, 500ml~~, Gs, WATER, TRITIUM

LW 10-2-92 1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)		
Relinquished by: L.D. Walker LD Walker	Received by: K. Trapp / K. Trapp	Date/Time: 10/5/92 0900
Relinquished by: K. Trapp / K. Trapp	Received by: Elby Z. Yamamoto	Date/Time: 10/6/92 11:00
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

9613473.2948

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/2/92 Time 1350 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07F48	1; 1L; P	WATER	Tc-99
↓	2; 250mL; Gs	WATER	TRITIUM
↓	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-8
			BOL: 2521568302
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech. Date 10-6-92

Analysis Required _____

087

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

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

A-6000-406(05/90)

9613473.2949

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-2-92

Ice Chest No. Alfa-6

Field Logbook No. WHE-N-4461

Bill of Lading/Airbill No. 2521568302

Offsite Property No. ~~W92-~~ W93-0-0001-9

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7FJ1

BW 1, 1L, P, WATER, Tc-99(HCl)

10-2-92 ~~1, 500mL~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM(HNO3)

2, 250 mL GS

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

Relinquished by:	Received by:	Date/Time:
B. WHITTEN	K. Trapp / K. Trapp	10/5/92 1000
Relinquished by: K. Trapp / K. Trapp	Received by: Elky H. Yamamoto	Date/Time: 10/6/92 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

088

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

9613473.2950

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/2/92 Time 1145 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FJ1	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-01-0001-8
			BOL: 2521568302
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Ellen R. Yamamoto Title Sample Control Tech. Date 10-6-92

Analysis Required 089

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

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

A-6000-406(05/9

9613473.2951

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-2-92

Ice Chest No. I T-47

Field Logbook No. WHC-N-4461

Bill of Lading/Airbill No. 252156302

Offsite Property No. ~~W92-~~ KT 10/5/92 W93-0-0001-8

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FJ2

BW-421, 1L, P, WATER, Tc-99(HCl)

10-2 ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM(HNO3)

2, 250 mL

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

Relinquished by:	Received by:	Date/Time:
B. WHITTEN	K. Trapp / K. Trapp	10/5/92 0900
K. Trapp / K. Trapp	Eloy S. Yamamoto	10/6/92 11:00

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

090

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

9613473.2952

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/2/92 Time 1052 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FJ2	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-8
			BOL: 2521568302
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Elby H. Yamamoto Title Sample Control Tech. Date 10-6-92

Analysis Required

091

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

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

A-6000-406(05/90)

9613473.2953

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/2/92

Ice Chest No. ALFA-6

Field Logbook No. WHC-N-4461

Bill of Lading/Airbill No. 252156 ~~9291~~ 302 KT 10/5/92

Offsite Property No. ~~W92~~ KT 10/5/92 WA93-0-0001-

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FK1

1, 1L, P, WATER, Tc-99(HCl)
1, 500ml, Gs, WATER, TRITIUM
1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

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

Relinquished by:	Received by:	Date/Time:
K. Trapp / K. Trapp	Eley G. Yamamoto	10-6-92 11:00
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:

092

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

9613473.2954

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/7/92 Time 1002 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FK1	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: W92-0-0001-8
			BOL: 2521569302
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Elky G. Yamamoto Title Sample Control Tech. Date 10-6-92

Analysis Required _____

0193

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

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

A-6000-406(05/90

9613473.2955

N2-10-053

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-5-92

Ice Chest No. SML-223

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 252156827T

Offsite Property No. ~~W92~~ KJS 10/6/92 W93-0-0001-10

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FF7

BW 1, 1L, P, WATER, Tc-99(HCl)

10-5-92 ~~1, 500ml,~~ Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240,

2, 250mL, TOTAL URANIUM(HNO3)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: R. B. Whitten B. WHITEN	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/6/92 1021
Relinquished by: AJ SIMPSON AJ Simpson	Received by: elby R. Yamamoto	Date/Time: 10-7-92 11:00
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

9613473.2956

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/5/92 Time 1000 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FF7	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: ~~W92-~~ AJS 10/6/92 W93-0-0001-10
			BOL: 25215682T
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech. Date 10-7-92

Analysis Required _____

095

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

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

A-6000-406(05/90)

9613473.2957

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-5-92

Ice Chest No. SML-223

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 2521568277

Offsite Property No. ~~W92-~~ AJS 10/6/92 W93-0-0001-10

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FG1

1, 1L, P, WATER, Tc-99(HCl)

2,250 mL ~~1, 500ml,~~ Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO3)

BW 10-5-92

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: B. WITTEN	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/6/92 1023
Relinquished by: AJ SIMPSON AJ Simpson	Received by: E Uby G. Yamamoto	Date/Time: 10-7-92 11:00
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

096

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

9613473.2958

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

C tor K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/5/92 Time 1121 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
BO TFG1	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: ~~W92-~~ AJS 10/6/92 W93.0-6001-10
			BOL: 252156827T
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Elby G. Yamamoto Title Sample Control Tech Date 10-7-92

Analysis Required _____

097

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

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

A-6000-406(05/9

9613473.2959

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Project Designation/Sampling Locations 200-BP-1

Ice Chest No. SML-223

Bill of Lading/Airbill No. 2521568277

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Telephone (509)376-5045

Collection Date 10-5-92

Field Logbook No. EFL-1020

Offsite Property No. ~~W92-~~ AJS 11/6/92 W93-0-0001-10

Sample Identification

B07FG9

1, 1L, P, WATER, Tc-99(HCl)

2,250 ~~1/2 500ml~~ SMS, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO3)

[✓] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: SM Steele SM Steele	Received by: GG HAMILTON GG Hamilton	Date/Time: 10/5/92 1400
Relinquished by: GG Hamilton GG HAMILTON	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1024 10/6/92
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Ekky D. Yamamoto	Date/Time: 10/7-92 11:00
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

098

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

9613473.2960

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

C ·tor K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/5/92 Time 1330 hours

Co...pany Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07F69	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: ~~W92-~~ AJS 11/1/92 WA93-0-0001-TO
			BOL: 252156827T
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

:eived by ~~Sample Con~~ my Egamamoto Title Sample Control Tech. Date 10-7-92

..alysis Required

099

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

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

A-6000-406(05/

9613473.2961

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/6/92

Ice Chest No. SML-213

Field Logbook No. EWHC-N-4461

Bill of Lading/Airbill No. 2521568159

Offsite Property No. ~~W92~~-075 10/1/92 W93-0-0001-13

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FF8

1, 1L, P, WATER, Tc-99(HCl)

10/6/92 ~~1, 500ml,~~ Gs, WATER, TRITIUM

10/6/92 1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO_3)

2, 250ml

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: KD Lee Kathy D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 1028 10/7/92
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Kermit Blum	Date/Time: 10-8-92 1100
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

100

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

9613473.2962

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

C tor K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/6/92 Time 1200 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FF8	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: ~~W82-~~ AJS 10/7/93 W93-0-0001-13
			BOL: 2521568159
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 10-8-92

Analysis Required _____

101

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

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

A-6000-406(05/9

9613473.2963

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10-7-92

Ice Chest No. SML-302

Field Logbook No. WHC-N-4961

Bill of Lading/Airbill No. 2521568346

Offsite Property No. ~~W02~~- AJS 10/8/92 W93-0-0001-16

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B0 7FF9

1, 1L, P, WATER, Tc-99(HCl)

2,250 ml ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO3)

BW 10-7-92

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: B. WHITTEN	Received by: AJ SIMPSON	Date/Time: 10/8/92 0802
Relinquished by: AJ SIMPSON	Received by: Kermit Blum	Date/Time: 10-9-92 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

102

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

9613473.2964

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

C tor K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/7/92 Time _____ hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
BD7FF9	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: ~~W92~~ AJS 10/8/92 W43-0-0001-16
			BOL: 2S21568346
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 10-9-92

Analysis Required _____

103

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

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

A-6000-406(05/

9613473.2965

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/7/92

Ice Chest No. SWL-302

Field Logbook No. WHC-N-9961

Bill of Lading/Airbill No. 2521568346

Offsite Property No. ~~W92~~-AJS 10/8/92 W93-0-0001-16

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FG4

1, 1L, P, WATER, Tc-99(HCl)

~~1, 500ml~~, Gs, WATER, TRITIUM

KDL 10/7/92 1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

→ 2, 250 ml

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kathy D. Lee K.D. Lee	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/8/92 0750
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Kermit Bleum	Date/Time: 10-9-92 1130
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

9613473.2966

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

C tor K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/7/92 Time 1100 hours

Co...pany Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
307FG4	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			AJS 10/8/92
			OPC: ~~WB2~~ WA3 0-0001-16
			BOL: 2521568346
			TASK: 92-300

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

:eived by Kermit Blum Title Sample Control Supervisor Date 10-9-92

Analysis Required

105

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

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

A-6000-406(05/90

9613473.2967

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/7/92

Ice Chest No. SML-302

Field Logbook No. EFL-1020

Bill of Lading/Airbill No. 2521568346

Offsite Property No. ~~W92~~ AJS 10/8/92 W93-0-0001-16

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FH0

1, 1L, P, WATER, Tc-99(HCl)

AJS 10/8/92 ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM

~~2 250~~ AJS 10/8/92

→ 2 250ml

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: GG Hamilton, GG HAMILTON	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/8/92 10/8/92
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Kermit Blum	Date/Time: 10-9-92 1130
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

106

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

9613473.2968

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

C tor K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/7/92 Time 1200 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B0 7FH0	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			OPC: ~~W92-~~ RJS 10/8/92 W93-0-00d-16
			BOL: 2521568346
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

eived by Kermit Blum Title Sample Control Supervisor Date 10-9-92

nalysis Required _____

107

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

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

A-6000-406(05/9

9613473.2969

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/8/92

Ice Chest No. SML-10

Field Logbook No. EFL 1020

Bill of Lading/Airbill No. 252156728T

Offsite Property No. ~~WBL~~ AJS 10/9/92 W93-0-0001-18

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7FGL

1, 1L, P, WATER, Tc-99(HCl)

2, 250ml ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO3)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: GB Hamilton	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/9/92 0848
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Kermit Blum	Date/Time: 10-12-92 0800 *
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

* Received @ TMA/NORCAL 10-10-92 @ 1330; opened 10-12-92. K

108

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

9613473.2970

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/8/92 Time 1115 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07FG2	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			AJS 10/4/92
			OPC: ~~W82-~~ W93-0-0001-18
			BOL: 2521567287
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 10-12-92

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

9613473.2971

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 200-BP-1

Collection Date 10/6/92

Ice Chest No. SML-18

Field Logbook No. EFL 1020

Bill of Lading/Airbill No. 2521567287

Offsite Property No. ~~W92~~ - AJS 10/9/92 W43-0-0001-18

Method of Shipment EMERY

Shipped to TMA

Possible Sample Hazards/Remarks N/A

Sample Identification

B07FG6

1, 1L, P, WATER, Tc-99(HCl)

2,250 ml ~~1, 500ml~~, Gs, WATER, TRITIUM

1, 4L, P, WATER, TOTAL ALPHA, TOTAL BETA, GAMMA SPEC, Sr-90, Pu-238/239/240, TOTAL URANIUM (HNO_3)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: G G Hamilton	Received by: AJ SIMPSON AJ Simpson	Date/Time: 10/9/92 0847
Relinquished by: AJ SIMPSON AJ Simpson	Received by: Kermit Blum	Date/Time: 10-12-92 0800 *
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

* Received @ TMA/NORCAL 10-10-92 @ 1330; opened 10-12-92 - KB

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

9613473.2972

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, L. Walker, G. Hamilton, C. Celiberti Date Sampled 10/8/92 Time 1030 hours

Company Contact P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B07F66	1; 1L; P	WATER	Tc-99
	2; 250mL; Gs	WATER	TRITIUM
	1; 4L; P	WATER	TOTAL ALPHA, TOTAL BETA, GAMMA SPEC., Sr-90,
			Pu-238/239/240, TOTAL URANIUM (HNO3)
			AJS 10/9/92
			OPC: ~~W02~~- W93-0-0001-18
			BOL: 252156728T
			TASK: 92-300

Field Information** _____

Special Handling and/or Storage _____

Possible Sample Hazards _____

PART II: LABORATORY SECTION

Received by Kermit Blum Title Sample Control Supervisor Date 10-12-92

Analysis Required _____

111

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

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

A-6000-406(05/90)

SAMPLE STATUS REPORT FOR E 4846. E-BLANK 6-47-60 TIME: 10/ 1/92 10: :
DISPATCHED: 9/ 3/92 10:32 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 1/92 7:45

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B01965
B07FG5
B07966
B07967

B079P1
B07FM3
B079P2
B079P3

KT 10/1/92

B079L5
B07FL5
B079L6
B079L7

SAMPLE STATUS REPORT FOR E 4873. E-BLANK 6-53-55C TIME: 10/ 2/92 8:29
DISPATCHED: 9/ 3/92 10:58 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 2/92 7:53

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

BO 7983

~~BO 7K1~~ AJS 10/2/92

AJS 10/2/92

BO 7FH1

BO 7984

BO 7985

SAMPLE STATUS REPORT FOR E 4858. E-BLANK 6-49-55B TIME: 10/ 9/92 8:34
DISPATCHED: 9/ 3/92 10:37 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 8/92 14: 2

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B0 7956
B07F62
B0 7957
B07958

AJS 10/9/92

SAMPLE STATUS REPORT FOR E 4859. E-BLANK 6-49-55A TIME: 10/ 9/92 8:3
DISPATCHED: 9/ 3/92 10:38 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 8/92 14: 2

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARG CODE
****	********	**********	***	***	*****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B07968
B07FG6
B07969
B07970

RSS
10/9/92

SAMPLE STATUS REPORT FOR E 4879. E-BLANK 2-33-40 TIME: 10/ 2/92 8:29
DISPATCHED: 9/ 3/92 11: 0 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 1/92 13:32

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

Bo 79H5
Bo 79H6
Bo 79H7

AJS 10/2/92

SAMPLE STATUS REPORT FOR E 4867. E-BLANK 2-33-5 TIME: 10/ 2/92 8:29
DISPATCHED: 9/ 3/92 10:56 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 1/92 13:31

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

BO 79J4

BO 7FK8

BO 79J5

BO 79J6

AJS 10/2/92

SAMPLE STATUS REPORT FOR E 4880. E-BLANK 2-33-7 TIME: 10/ 2/92 8:29
DISPATCHED: 9/ 3/92 11: 1 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 1/92 13:31

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

BO 79J7
BO 79J8
BO 7FK9
BO 79J9

AJS 10/2/92

SAMPLE STATUS REPORT FOR E 4853. E-BLANK 2-33-38 TIME: 10/ 5/92 8:1
DISPATCHED: 9/ 3/92 10:35 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 5/92 7:42

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHAR CODI
****	********	**********	***	***	****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1C

END OF REPORT

B079G9,
" HO
" H1 KT 10/5/92
B07FK1

SAMPLE STATUS REPORT FOR E 4862. E-BLANK 2-34-1 TIME: 10/ 5/92 8:11
DISPATCHED: 9/ 3/92 10:54 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 5/92 7:42

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B079B4
B07FH6
B079B5
" 6

KT 10/5/92

SAMPLE STATUS REPORT FOR E 4875. E-BLANK 2-34-2 TIME: 10/ 5/92 8:11
DISPATCHED: 9/ 3/92 10:59 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 5/92 7:42

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B079B7
" 8
" 9 kr 10/5/92
B07FH7

SAMPLE STATUS REPORT FOR E 4876. E-BLANK 2-33-28 TIME: 10/ 5/92 8:1
DISPATCHED: 9/ 3/92 10:59 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 5/92 7:42

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGI CODE
****	********	**********	***	***	*****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B079C9
" D0 KT 10/5/92
" D1
B07FJ1

SAMPLE STATUS REPORT FOR E 4887. E-BLANK 2-34-5 TIME: 10/ 5/92 8:
DISPATCHED: 9/ 3/92 11: 5 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 5/92 7:42

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHAR CODI
****	********	**********	***	***	****
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1C

END OF REPORT

B079C0
" 1
" 2
B07FH8

KT 10/5/92

SAMPLE STATUS REPORT FOR E 4888. E-BLANK 2-33-29 TIME: 10/ 5/92 8:11
DISPATCHED: 9/ 3/92 11: 6 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 5/92 7:42

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

B079D2

B079D3

B079D4 KT 10/5/92

~~B079D~~ KT 10/5/92

B07FJ2

SAMPLE STATUS REPORT FOR E 4845. E-BLANK 6-49-57B TIME: 10/ 6/92 8:18
DISPATCHED: 9/ 3/92 10:32 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 6/92 7:45

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PELCA

END OF REPORT

~~BO 791~~ AJS 10/6/92

BO 7953
BO 7F61
BO 7954
BO 7955

AJS 10/6/92

SAMPLE STATUS REPORT FOR E 4847. E-BLANK 6-53-55A TIME: 10/ 6/92 8:18
DISPATCHED: 9/ 3/92 10:33 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 6/92 7:45

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

BO 7977
BO 79FG9
BO 7978
BO 7979

AJS 11/6/92

AJS ~~10/8/92~~
10/6/92

SAMPLE STATUS REPORT FOR E 4844. E-BLANK 6-55-57 TIME: 10/ 6/92 8:18
DISPATCHED: 9/ 3/92 10:32 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 6/92 7:45

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PELCA

END OF REPORT

BO 7941

BO 7FF7

BO 7942

BO 7943

AJS 10/6/92

SAMPLE STATUS REPORT FOR E 4857. E-BLANK 6-54-57 TIME: 10/ 7/92 7:52
DISPATCHED: 9/ 3/92 10:37 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 6/92 14:22

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

BO 7944
BO 7FF8
BO 7945
BO 7946

AJS 10/7/92

SAMPLE STATUS REPORT FOR E 4870. E-BLANK 6-55-55 TIME: 10/ 8/92 8: 9
DISPATCHED: 9/ 3/92 10:57 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 7/92 15:14

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

Bo 7947
Bo 7948
Bo 7FF9
Bo 7949

AJS 10/7/92

SAMPLE STATUS REPORT FOR E 4883. E-BLANK 6-52-54 TIME: 10/ 8/92 8: 9
DISPATCHED: 9/ 3/92 11: 2 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 7/92 15:15

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

Bo 7962
Bo 7FG4
Bo 7963
Bo 7964

AJS 10/8/92

SAMPLE STATUS REPORT FOR E 4860. E-BLANK 6-53-55B TIME: 10/ 8/92 8: 9
DISPATCHED: 9/ 3/92 10:38 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 10/ 7/92 15:16

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	PE1CA

END OF REPORT

BO 7980
BO 7FH0
BO 7981
BO 7982

AJS

9613473.2993

N210060-23

TMA NORCAL

REPORTING GROUP 7106

REPLICATE

B07FG5

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N210060-23
Dept sample id 7106-023

ORIGINAL
Lab sample id N210060-01
Dept sample id 7106-001
Received 10/02/92

Client sample id B07FG5
Matrix WATER
Collected 09/30/92
Chain of custody id WHC-N-4461

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PRC TOT LIMI
Gross Alpha	0.37	1.8	3	3	U	80A	-0.33	1.4	2	U	-	
Gross Beta	6.4	1.5	2	4		80B	-0.50	1.0	2	U	200	89
Total Uranium (ug/L)	2.6	0.62	0.07			U_T	2.5	0.61	0.07		4	55
Technetium 99	2.6	3.7	9	5	U	TC	2.2	0.68	1	J	17	236
Tritium	-33	110	200	400	U	H	-42	110	200	U	-	
GAMMA SCAN ANALYTES												
Potassium 40	U		90		U	GAM	U		300	U	-	
Iron 59	U		50	30	U	GAM	U		90	U	-	
Chromium 51	U		600		U	GAM	U		800	U	-	
Cobalt 60	U		9	30	U	GAM	U		20	U	-	
Zinc 65	U		20		U	GAM	U		40	U	-	
Ruthenium 106	U		90		U	GAM	U		100	U	-	
Cesium 134	U		8		U	GAM	U		20	U	-	
Cesium 137	U		8	20	U	GAM	U		20	U	-	
Europium 152	U		20	40	U	GAM	U		30	U	-	
Europium 154	U		10	40	U	GAM	U		20	U	-	
Radium 226	U		20		U	GAM	U		30	U	-	
Thorium 228	U		20		U	GAM	U		20	U	-	
Thorium 232	U		30		U	GAM	U		70	U	-	

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.22
Report date 02/02/93

9613473.2994

N210060-24

TMA NORCAL

REPORTING GROUP 7106

REPLICATE

B07FM3

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N210060-24
Dept sample id 7106-024

ORIGINAL
Lab sample id N210060-02
Dept sample id 7106-002
Received 10/02/92

Client sample id B07FM3
Matrix WATER
Collected 09/30/92
Chain of custody id WHC-N-4461

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PRO LIMI
Plutonium 238	0.019	0.027	0.04	0.05	U	PU	0.038	0.023	0.03	J	67	187	
Plutonium 239/240	0	0.005	0.02	0.05	U	PU	-0.019	0.023	0.05	U	-		
GAMMA SCAN ANALYTES													

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.22
Report date 02/02/93

9613473.2995

N210060-25

TMA NORCAL

REPORTING GROUP 7106

REPLICATE

B07FH1

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

REPLICATE
Lab sample id N210060-25
Dept sample id 7106-025

ORIGINAL
Lab sample id N210060-03
Dept sample id 7106-003
Received 10/05/92

Client sample id B07FH1
Matrix WATER
Collected 10/01/92
Chain of custody id EFL-1020

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Strontium 90	0.36	0.42	1	2	U	Y	0.021	0.66	1	U	-		
GAMMA SCAN ANALYTES													

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-REP
Version 2.22
Report date 02/02/93

9613473.2996

N210060-12

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FF7

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-12
Dept sample id 7106-012
Received 10/07/92
Client sample id B07FF7
Matrix WATER
Collected 10/05/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.34	6.6	4	3	U	80A
Gross Beta	Beta	810	11	2	4		80B
Total Uranium (ug/L)	7440-61-1	5.3	1.3	0.07			U_T
Plutonium 238	13981-16-3	0.003	0.010	0.02	0.05	U	PU
Plutonium 239/240		-0.003	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	-0.25	0.45	0.9	2	U	Y
Technetium 99	14133-76-7	2500	59	10	5		TC
Tritium	10028-17-8	6900	260	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	58	15		30		GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	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
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9613473.2997

N210060-15

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FF8

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-15
Dept sample id 7106-015
Received 10/08/92
Client sample id B07FF8
Matrix WATER
Collected 10/06/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.26	1.6	2	3	U	80A
Gross Beta	Beta	8.3	1.6	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.8	0.67	0.07			U_T
Plutonium 238	13981-16-3	0.011	0.057	0.1	0.05	U	PU
Plutonium 239/240		0.023	0.046	0.08	0.05	U	PU
Strontium 90	10098-97-2	0.079	0.25	0.9	2	U	Y
Technetium 99	14133-76-7	1.3	2.2	7	5	U	TC
Tritium	10028-17-8	-48	110	200	400	U	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		60	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		90		U	GAM
Cesium 134	17967-70-9	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.2998

N210060-16

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FF9

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-16
Dept sample id 7106-016
Received 10/09/92

Client sample id B07FF9
Matrix WATER
Collected 10/08/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	3.1	2.1	2	3		80A
Gross Beta	Beta	72	3.5	2	4		80B
Total Uranium (ug/L)	7440-61-1	1.8	0.43	0.07			U_T
Plutonium 238	13981-16-3	-0.010	0.040	0.07	0.05	U	PU
Plutonium 239/240		-0.003	0.013	0.04	0.05	U	PU
Strontium 90	10098-97-2	0.15	0.85	0.9	2	U	Y
Technetium 99	14133-76-7	150	7.9	4	5		TC
Tritium	10028-17-8	2600	180	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		60		U	GAM
Iron 59		U		30	30	U	GAM
Chromium 51	14392-02-0	U		300		U	GAM
Cobalt 60	10198-40-0	U		6	30	U	GAM
Zinc 65	17982-39-3	U		10		U	GAM
Ruthenium 106	13967-48-1	U		50		U	GAM
Cesium 134	17967-70-9	U		5		U	GAM
Cesium 137	10045-97-3	U		5	20	U	GAM
Europium 152	14683-23-9	U		10	40	U	GAM
Europium 154	15585-10-1	U		7	40	U	GAM
Radium 226	13982-67-7	U		10		U	GAM
Thorium 228	14274-82-9	U		9		U	GAM
Thorium 232	7440-29-1	U		20		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.2999

N210060-13

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG1

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-13
Dept sample id 7106-013
Received 10/07/92
Client sample id B07FG1
Matrix WATER
Collected 10/05/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.18	1.3	2	3	U	80A
Gross Beta	Beta	4.9	1.3	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.3	0.55	0.07			U_T
Plutonium 238	13981-16-3	-0.003	0.010	0.03	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.068	0.73	1	2	U	Y
Technetium 99	14133-76-7	1.1	1.2	3	5	U	TC
Tritium	10028-17-8	-36	110	200	400	U	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		70	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		80		U	GAM
Cesium 134	17967-70-9	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
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Version 2.22
Report date 02/02/93

9613473.3000

N210060-19

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG2

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-19
Dept sample id 7106-019
Received 10/12/92

Client sample id B07FG2
Matrix WATER
Collected 10/08/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	2.6	1.9	2	3	J	80A
Gross Beta	Beta	5.5	1.4	2	4		80B
Total Uranium (ug/L)	7440-61-1	3.0	0.72	0.07			U_T
Plutonium 238	13981-16-3	-0.011	0.030	0.07	0.05	U	PU
Plutonium 239/240		0.015	0.030	0.06	0.05	U	PU
Strontium 90	10098-97-2	-0.28	0.59	0.9	2	U	Y
Technetium 99	14133-76-7	4.1	2.1	5	5	U	TC
Tritium	10028-17-8	-55	110	200	400	U	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		20	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3001

N210060-17

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG4

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-17
Dept sample id 7106-017
Received 10/09/92

Client sample id B07FG4
Matrix WATER
Collected 10/07/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-9.3	3.8	3	3	U	80A
Gross Beta	Beta	700	7.3	1	4		80B
Total Uranium (ug/L)	7440-61-1	7.6	1.8	0.07			U_T
Plutonium 238	13981-16-3	0	0.049	0.09	0.05	U	PU
Plutonium 239/240		0.030	0.040	0.08	0.05	U	PU
Strontium 90	10098-97-2	0.96	0.40	0.9	2	J	Y
Technetium 99	14133-76-7	1800	34	5	5		TC
Tritium	10028-17-8	830	140	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		70		U	GAM
Iron 59		U		40	30	U	GAM
Chromium 51	14392-02-0	U		300		U	GAM
Cobalt 60	10198-40-0	50	7.7		30		GAM
Zinc 65	17982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		60		U	GAM
Cesium 134	17967-70-9	U		6		U	GAM
Cesium 137	10045-97-3	U		6	20	U	GAM
Europium 152	14683-23-9	U		10	40	U	GAM
Europium 154	15585-10-1	U		8	40	U	GAM
Radium 226	13982-67-7	U		10		U	GAM
Thorium 228	14274-82-9	U		10		U	GAM
Thorium 232	7440-29-1	U		30		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3002

N210060-01

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG5

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-01
Dept sample id 7106-001
Received 10/02/92

Client sample id B07FG5
Matrix WATER
Collected 09/30/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.33	1.4	2	3	U	80A
Gross Beta	Beta	-0.50	1.0	2	4	U	80B
Total Uranium (ug/L)	7440-61-1	2.5	0.61	0.07			U_T
Plutonium 238	13981-16-3	-0.003	0.035	0.07	0.05	U	PU
Plutonium 239/240		0.010	0.021	0.03	0.05	U	PU
Strontium 90	10098-97-2	0.25	0.33	1	2	U	Y
Technetium 99	14133-76-7	2.2	0.68	1	5	J	TC
Tritium	10028-17-8	-42	110	200	400	U	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		20	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

Lab id TMAN
Protocol WHC-HEIS
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Version 2.22
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N210060-20

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG6

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-20
Dept sample id 7106-020
Received 10/12/92
Client sample id B07FG6
Matrix WATER
Collected 10/08/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.22	3.2	3	3	U	80A
Gross Beta	Beta	200	5.6	2	4		80B
Total Uranium (ug/L)	7440-61-1	4.7	1.1	0.07			U_T
Plutonium 238	13981-16-3	0.020	0.034	0.06	0.05	U	PU
Plutonium 239/240		-0.013	0.027	0.06	0.05	U	PU
Strontium 90	10098-97-2	0.31	0.48	1	2	U	Y
Technetium 99	14133-76-7	500	19	6	5		TC
Tritium	10028-17-8	1200	150	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		30		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
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N210060-14

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG9

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-14
Dept sample id 7106-014
Received 10/07/92

Client sample id B07FG9
Matrix WATER
Collected 10/05/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	1.5	1.6	2	3	U	80A
Gross Beta	Beta	9.3	1.6	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.4	0.59	0.07			U_T
Plutonium 238	13981-16-3	0.021	0.031	0.05	0.05	U	PU
Plutonium 239/240		0.010	0.031	0.07	0.05	U	PU
Strontium 90	10098-97-2	0.16	0.69	1	2	U	Y
Technetium 99	14133-76-7	0.69	1.4	3	5	U	TC
Tritium	10028-17-8	370	120	200	400	J	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		600		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	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 2.22
Report date 02/02/93

N210060-18

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH0

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-18
Dept sample id 7106-018
Received 10/09/92

Client sample id B07FH0
Matrix WATER
Collected 10/07/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	8.2	3.8	3	3		80A
Gross Beta	Beta	130	4.6	2	4		80B
Total Uranium (ug/L)	7440-61-1	6.1	1.5	0.07			U_T
Plutonium 238	13981-16-3	0.025	0.061	0.1	0.05	U	PU
Plutonium 239/240		0.006	0.049	0.09	0.05	U	PU
Strontium 90	10098-97-2	0.019	0.29	1	2	U	Y
Technetium 99	14133-76-7	300	16	9	5		TC
Tritium	10028-17-8	200	120	200	400	J	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
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Version 2.22
Report date 02/02/93

N210060-03

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH1

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-03
Dept sample id 7106-003
Received 10/05/92
Client sample id B07FH1
Matrix WATER
Collected 10/01/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-2.3	2.4	3	3	U	80A
Gross Beta	Beta	100	4.0	2	4		80B
Total Uranium (ug/L)	7440-61-1	4.5	1.1	0.07			U_T
Plutonium 238	13981-16-3	-0.018	0.026	0.05	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.021	0.66	1	2	U	Y
Technetium 99	14133-76-7	270	13	6	5		TC
Tritium	10028-17-8	170	120	200	400	U	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	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 2.22
Report date 02/02/93

N210060-06

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH6

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-06
Dept sample id 7106-006
Received 10/06/92
Client sample id B07FH6
Matrix WATER
Collected 10/02/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	1.4	1.8	3	3	U	80A
Gross Beta	Beta	5.3	1.6	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.4	0.58	0.07			U_T
Plutonium 238	13981-16-3	-0.003	0.021	0.05	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.18	0.84	1	2	U	Y
Technetium 99	14133-76-7	0.49	2.7	9	5	U	TC
Tritium	10028-17-8	2700	190	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		900		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		200		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3008

N210060-07

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH7

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-07
Dept sample id 7106-007
Received 10/06/92
Client sample id B07FH7
Matrix WATER
Collected 10/02/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.068	1.7	3	3	U	80A
Gross Beta	Beta	6.6	1.5	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.9	0.70	0.07			U_T
Plutonium 238	13981-16-3	0.004	0.037	0.07	0.05	U	PU
Plutonium 239/240		-0.007	0.007	0.04	0.05	U	PU
Strontium 90	10098-97-2	0.14	1.1	1	2	U	Y
Technetium 99	14133-76-7	1.9	2.9	9	5	U	TC
Tritium	10028-17-8	3000	190	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		20	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

N210060-08

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH8

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-08
Dept sample id 7106-008
Received 10/06/92
Client sample id B07FH8
Matrix WATER
Collected 10/02/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	3.0	2.7	3	3		80A
Gross Beta	Beta	9.3	1.8	2	4		80B
Total Uranium (ug/L)	7440-61-1	5.3	1.3	0.07			U_T
Plutonium 238	13981-16-3	-0.010	0.021	0.05	0.05	U	PU
Plutonium 239/240		0.005	0.010	0.02	0.05	U	PU
Strontium 90	10098-97-2	-0.24	0.53	1	2	U	Y
Technetium 99	14133-76-7	3.2	2.1	6	5	U	TC
Tritium	10028-17-8	220	120	200	400	J	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	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 2.22
Report date 02/02/93

9613475.3010

N210060-09

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FJ1

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-09
Dept sample id 7106-009
Received 10/06/92

Client sample id B07FJ1
Matrix WATER
Collected 10/02/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.48	1.6	2	3	U	80A
Gross Beta	Beta	19	2.0	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.2	0.53	0.07			U_T
Plutonium 238	13981-16-3	-0.011	0.035	0.07	0.05	U	PU
Plutonium 239/240		-0.004	0.007	0.03	0.05	U	PU
Strontium 90	10098-97-2	2.4	2.0	4	2	U	Y
Technetium 99	14133-76-7	46	6.5	10	5		TC
Tritium	10028-17-8	2100	170	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		70	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.5011

N210060-10

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FJ2

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-10
Dept sample id 7106-010
Received 10/06/92
Client sample id B07FJ2
Matrix WATER
Collected 10/02/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	1.2	1.6	2	3	U	80A
Gross Beta	Beta	25	2.2	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.2	0.52	0.07			U_T
Plutonium 238	13981-16-3	0.003	0.021	0.05	0.05	U	PU
Plutonium 239/240		-0.003	0.007	0.03	0.05	U	PU
Strontium 90	10098-97-2	0.19	0.82	1	2	U	Y
Technetium 99	14133-76-7	41	3.7	4	5		TC
Tritium	10028-17-8	2600	180	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	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 2.22
Report date 02/02/93

9615473.5012

N210060-11

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FK1

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-11
Dept sample id 7106-011
Received 10/06/92
Client sample id B07FK1
Matrix WATER
Collected 10/02/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	15	4.4	2	3		80A
Gross Beta	Beta	360	7.4	2	4		80B
Total Uranium (ug/L)	7440-61-1	5.4	1.3	0.07			U_T
Plutonium 238	13981-16-3	0.010	0.021	0.03	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	-0.25	0.71	0.9	2	U	Y
Technetium 99	14133-76-7	810	30	9	5		TC
Tritium	10028-17-8	4300	220	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

N210060-04

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FK8

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-04
Dept sample id 7106-004
Received 10/05/92
Client sample id B07FK8
Matrix WATER
Collected 10/01/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	8.2	4.1	3	3		80A
Gross Beta	Beta	410	7.8	2	4		80B
Total Uranium (ug/L)	7440-61-1	6.0	1.4	0.07			U_T
Plutonium 238	13981-16-3	-0.016	0.031	0.07	0.05	U	PU
Plutonium 239/240		0.004	0.016	0.03	0.05	U	PU
Strontium 90	10098-97-2	0.60	0.37	1	2	U	Y
Technetium 99	14133-76-7	1100	31	7	5		TC
Tritium	10028-17-8	4100	210	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		30	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		40		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3014

N210060-05

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FK9

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-05
Dept sample id 7106-005
Received 10/05/92

Client sample id B07FK9
Matrix WATER
Collected 10/01/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	2.6	3.4	3	3	U	80A
Gross Beta	Beta	330	7.1	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.4	0.57	0.07			U_T
Plutonium 238	13981-16-3	-0.002	0.018	0.04	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.26	0.75	1	2	U	Y
Technetium 99	14133-76-7	720	21	5	5		TC
Tritium	10028-17-8	3100	190	200	400		H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	15	11		30	J	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		40		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 2.22
Report date 02/02/93

N210060-02

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FM3

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-02
Dept sample id 7106-002
Received 10/02/92
Client sample id B07FM3
Matrix WATER
Collected 09/30/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.94	1.4	3	3	U	80A
Gross Beta	Beta	-2.8	1.1	2	4	U	80B
Total Uranium (ug/L)	7440-61-1	2.6	0.64	0.07			U_T
Plutonium 238	13981-16-3	0.038	0.023	0.03	0.05	J	PU
Plutonium 239/240		-0.019	0.023	0.05	0.05	U	PU
Strontium 90	10098-97-2	0.26	0.97	1	2	U	Y
Technetium 99	14133-76-7	2.7	1.8	5	5	U	TC
Tritium	10028-17-8	-39	110	200	400	U	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	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 2.22
Report date 02/02/93

9613473.3016

Golder Associates Inc.

4104-148th Avenue, NE
Redmond, WA 98052
Telephone (206) 883-0777
Fax (206) 882-5498

Golder Associates

rec'd by Samp Manag 5-11-93

May 10, 1993

Our ref: 913-1719
S/O/2245

Westinghouse Hanford Company
Hanford Analytical Services Management
345 Hills, MSIN H4-29
Richland, Washington 99352

ATTENTION: Ms. Brianna Colley

RE: 200-BP-1 DATA VALIDATION, TASK ORDER S-92-19, TRANSMITTAL OF DATA VALIDATION PACKAGES

Dear Ms. Colley:

Enclosed are the following radiochemistry analytical data packages for the 200-BP-1 Project.

- B07FG0-TMA-374
- B079P8-TMA-393
- B07FF7-TMA-380

The data verification and validation documentation is located in the front of the data package.

Please call if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Kent M. Angelos
Task Manager

Donald M. Caldwell
Project Director

Enclosures

cc: Mark Buckmaster, WHC
P.K. Brockman, SAIC-Kennewick

9613473.3017

MEMORANDUM

TO: 200-BP-1 Project QA Record May 10, 1993

FR: Susan Winter, Golder Associates Inc.

RE: RADIOCHEMISTRY ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE B07FF7-TMA-380

INTRODUCTION

This memo presents the results of data validation on data package B07FF7-TMA-380 consisting of twenty (20) water samples submitted to TMA/Norcal laboratory for radiochemistry analysis. A list of the samples validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA
B07FF7	10/05/92	Water
B07FF8	10/06/92	Water
B07FF9	10/07/92	Water
B07FG1	10/05/92	Water
B07FG2	10/08/92	Water
B07FG4	10/07/92	Water
B07FG5	09/30/92	Water
B07FG6	10/08/92	Water
B07FG9	10/05/92	Water
B07FH0	10/07/92	Water
B07FH1	10/01/92	Water
B07FH6	10/02/92	Water
B07FH7	10/02/92	Water
B07FH8	10/02/92	Water
B07FJ1	10/02/92	Water
B07FJ2	10/02/92	Water
B07FK1	10/02/92	Water
B07FK8	10/01/92	Water
B07FK9	10/01/92	Water
B07FM3	09/30/92	Water

Data validation was conducted in accordance with the revised WHC statement of work (WHC 1993) and validation procedures (Bechtold 1992). Attachments 1 through 4 to this memo provide the data validation supporting documentation and a summary of the validated results.

DATA QUALITY OBJECTIVES

Precision. Goals for precision were met with the exception of the gross beta duplicate sample analysis as summarized under "Minor Deficiencies".

Accuracy. Goals for accuracy were met with the exception of the tracer, chemical, and laboratory control sample (LCS) recoveries as summarized under "Major Deficiencies" and "Minor Deficiencies".

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses with the exception of the uranium supplement as summarized in "Minor Deficiencies". Also, the calibration information pertaining to the first week of January, 1993 was obtained from SDG B07FG0-TMA-374 and was used to validate the technetium-99 and strontium-90 sample data.

Twenty (20) samples were validated in this data set with a total of 420 determinations reported, of which 396 were deemed valid. This results in a completeness of 94 percent which meets the work plan objectives of 90%.

MAJOR DEFICIENCIES

The following presents a summary of the rejected data.

Continuing Calibration

Background checks associated with the samples listed below were out of the laboratory control limits. Therefore, the reported minimum detectable activity (MDA) values have been qualified as unusable (UR) since the MDA determination is based on the background value, which is inaccurate.

SAMPLES	PARAMETER	DETECTOR	QUALIFIER
B07FG5, B07FM3, B07FH1, B07FG1, B07FF8, B07FG2	Tritium	5	UR
B07FK8, B07FH8, B07FJ2, B07FH0, B07FG2, B07FG6	Strontium-90	GRB208	UR

The technetium-99 background checks for detectors LBG 3 and LBG 10 were not recorded. Therefore, all associated technetium-99 results reported as undetected, samples B07FF8, B07FH8, and the laboratory blank, have been qualified as unusable (UR).

Tracer and Chemical Yields

Plutonium-242 tracer recoveries were below the 30% control limit for samples B07FG9, B07FF8, B07FG4, B07FH0, and the laboratory blank. Therefore, the associated sample

results for plutonium-238 and 239/240 have been qualified as unusable (R for detects, UR for non-detects).

The chemical recoveries for strontium-90 and technetium-99 in sample B07FJ1 were below the control limit of 30%. Therefore, the associated sample results have been qualified as unusable (R for detects, UR for non-detects).

MINOR DEFICIENCIES

The following qualifications were required as a result of the validation.

Continuing Calibration

Background checks associated with the samples listed below were out of the laboratory control limits. Therefore, the associated positive results do not reflect an accurate activity level causing the results to be qualified as estimated (J).

SAMPLES	PARAMETER	DETECTOR	QUALIFIER
B07FG4	Gross Beta	GRB111	J
B07FK8, B07FK9, B07FH6, B07FH7, B07FH8, B07FJ1, B07FJ2, B07FK1, B07FF7, B07FG9, B07FF9, B07FG4, B07FH0, B07FG6	Tritium	5	J
B07FG4	Strontium-90	GRB208	J
B07FJ1	Technetium-99	LBG15	none required, data rejected due to low yield

The technetium-99 background checks for detectors LBG 3 and LBG 10 were not recorded. Therefore, all associated positive technetium-99 results for samples B07FK9, B07FJ1, and B07FH0 have been qualified as estimated (J).

Laboratory Blank

Technetium-99 was detected in the laboratory blank associated with sample B07FJ1 only. However, since the associated sample result has already been rejected (R) due to low chemical yield, no further qualification was necessary.

Laboratory Control Sample

The laboratory control sample percent recovery for gross alpha was 73%, which is less than the lower control limit of 80%. Therefore, all associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

Sample Duplicate

The duplicate relative percent difference for gross beta was out of the specified control limits. Therefore, all gross beta results have been qualified as estimated (J for detects, UJ for non-detects).

Verification of Sample Calculations

The sample results for total uranium by the phosphorimetric method cannot be recalculated using the information provided to date. Therefore, all associated sample results have been qualified as estimated (J for detects, UJ for non-detects).

REFERENCES

WHC, 1993, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision F, April 1993. Westinghouse Hanford Company, Richland, Washington.

Bechtold, 1992, Westinghouse Hanford Company, Data Validation Procedures for Radiochemical Analyses, WHC-SD-EN-SPP-001, Rev. 1, 1992. Westinghouse Hanford Company, Richland, Washington.

9613473.3021

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

9613473.3022

GLOSSARY OF RADIOCHEMISTRY DATA REPORTING QUALIFIERS

U - The constituent was analyzed for, but was not detected above the minimum detectable activity (MDA). The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory. The data are usable for decision making purposes.

UJ - The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit. The data are usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data are usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data are unusable.

R - Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data are unusable.

9613473.3023

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

9613473.3024

DATA QUALIFICATION SUMMARY - FORM B-7

B07FF7-TMA-380

SDG:	REVIEWER:	DATE: 5/06/93	PAGE 1 OF 2
COMMENTS: Radiochemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Gross beta	J	B07FG4	Bkgd. control ck out of CL (below the CL)
Sr-90	UR	B07FK8	Assoc. detector (GRB208) bkgd. was out of CL (below)
	UR	B07FH8	
	UR	B07FJ2	
	J	B07FG4	
	UR	B07FH0	
	UR	B07FG2	
	UR	B07FG6	
Tc-99	J	B07FJ1	Present in blank
Pu-238 & Pu-239/240	R/UR	B07FG9	Tracer %R <30%
		B07FF8	
		B07FG4	
		B07FH0	
		Lab blank	
Sr-90	UR	B07FJ1	Chemical yield <30%
Tc-99	R	B07FJ1	
Gross beta	J/UJ	All	Dup RPD out of CL
Gross alpha	J/UJ	All	LCS %R less than 80%

DATA QUALIFICATION SUMMARY - FORM B-7

B07FF7-TMA-380

SDG:	REVIEWER:	DATE: 5/06/93	PAGE 2 OF 2
COMMENTS: Radiochemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Tc-99	J (already rejected)	B07FJ1	Assoc. detector (LBG15) bkgd. above the CL
Tritium	UR	B07FG5/M3	Bkgd. value is greater than the upper CL
		B07FH1/G1	
		B07FF8/G2	
Tritium	J	B07FK8/K9	Bkgd. value is above the upper CL
		B07FH6/H7	
		B07FH8/J1	
		B07FJ2/K1	
		B07FF7/G9	
		B07FF9/G4	
		B07FH0/G6	
TC-99	UR	B07FF8	Bkgd. cal. checks not performed for detectors LBG 3 & 10.
		B07FH8	
		laboratory blank	
	J	B07FK9	
		B07FJ1	
		B07FH0	
Uranium	~~J/UR~~ J	All	Reported results cannot be verified.
	5/6/93		

9613473.3026

ATTACHMENT 3

AS QUALIFIED DATA SUMMARY

9613473.3038

N210060-12

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FF7

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-12
Dept sample id 7106-012
Received 10/07/92
Client sample id B07FF7
Matrix WATER
Collected 10/05/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.34	6.6	4	3	U	80A
Gross Beta	Beta	810	11	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	5.3	1.3	0.07		—	U_T
Plutonium 238	13981-16-3	0.003	0.010	0.02	0.05	U	PU
Plutonium 239/240		-0.003	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	-0.25	0.45	0.9	2	U	Y
Technetium 99	14133-76-7	2500	59	10	5		TC
Tritium	10028-17-8	6900	260	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	58	15		30		GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

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4/27/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3041

N210060-15

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FF8

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-15
Dept sample id 7106-015
Received 10/08/92
Client sample id B07FF8
Matrix WATER
Collected 10/06/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	0.26	1.6	2	3	~~U~~	80A
Gross Beta	Beta	8.3	1.6	2	4		80B
Total Uranium (ug/L)	7440-61-1	2.8	0.67	0.07			U_T
Plutonium 238	13981-16-3	0.011	0.057	0.1	0.05	~~U~~	PU
Plutonium 239/240		0.023	0.046	0.08	0.05	~~U~~	PU
Strontium 90	10098-97-2	0.079	0.25	0.9	2	U	Y
Technetium 99	14133-76-7	1.3	2.2	7	5	~~U~~	TC
Tritium	10028-17-8	-48	110	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		60	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		90		U	GAM
Cesium 134	17967-70-9	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
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Version 2.22
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9613473.3042

N210060-16

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FF9

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-16
Dept sample id 7106-016
Received 10/09/92

Client sample id B07FF9
Matrix WATER
Collected ~~10/08/92~~ 10/07/92 5/4/93
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	3.1	2.1	2	3	—	80A
Gross Beta	Beta	72	3.5	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	1.8	0.43	0.07		—	U_T
Plutonium 238	13981-16-3	-0.010	0.040	0.07	0.05	U	PU
Plutonium 239/240		-0.003	0.013	0.04	0.05	U	PU
Strontium 90	10098-97-2	0.15	0.85	0.9	2	U	Y
Technetium 99	14133-76-7	150	7.9	4	5		TC
Tritium	10028-17-8	2600	180	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		60		U	GAM
Iron 59		U		30	30	U	GAM
Chromium 51	14392-02-0	U		300		U	GAM
Cobalt 60	10198-40-0	U		6	30	U	GAM
Zinc 65	17982-39-3	U		10		U	GAM
Ruthenium 106	13967-48-1	U		50		U	GAM
Cesium 134	17967-70-9	U		5		U	GAM
Cesium 137	10045-97-3	U		5	20	U	GAM
Europium 152	14683-23-9	U		10	40	U	GAM
Europium 154	15585-10-1	U		7	40	U	GAM
Radium 226	13982-67-7	U		10		U	GAM
Thorium 228	14274-82-9	U		9		U	GAM
Thorium 232	7440-29-1	U		20		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-13

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG1

SDG	7106	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N210060-13	Client sample id	B07FG1
Dept sample id	7106-013	Matrix	WATER
Received	10/07/92	Collected	10/05/92
		Chain of custody id	EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	0.18	1.3	2	3	~~U~~	80A
Gross Beta	Beta	4.9	1.3	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	2.3	0.55	0.07		—	U_T
Plutonium 238	13981-16-3	-0.003	0.010	0.03	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.068	0.73	1	2	U	Y
Technetium 99	14133-76-7	1.1	1.2	3	5	U	TC
Tritium	10028-17-8	-36	110	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		70	30	U	GAM
Chromium 51	14392-02-0	U		500		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		80		U	GAM
Cesium 134	17967-70-9	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

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Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.22
Report date	02/02/93

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N210060-19

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG2

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-19
Dept sample id 7106-019
Received 10/12/92
Client sample id B07FG2
Matrix WATER
Collected 10/08/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	2.6	1.9	2	3	~~J~~	80A
Gross Beta	Beta	5.5	1.4	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	3.0	0.72	0.07		—	U_T
Plutonium 238	13981-16-3	-0.011	0.030	0.07	0.05	U	PU
Plutonium 239/240		0.015	0.030	0.06	0.05	U	PU
Strontium 90	10098-97-2	-0.28	0.59	0.9	2	~~U~~	Y
Technetium 99	14133-76-7	4.1	2.1	5	5	U	TC
Tritium	10028-17-8	-55	110	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		20	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-17

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG4

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-17
Dept sample id 7106-017
Received 10/09/92
Client sample id B07FG4
Matrix WATER
Collected 10/07/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	-9.3	3.8	3	3	~~U~~	80A
Gross Beta	Beta	700	7.3	1	4	—	80B
Total Uranium (ug/L)	7440-61-1	7.6	1.8	0.07		—	U_T
Plutonium 238	13981-16-3	0	0.049	0.09	0.05	~~U~~	PU
Plutonium 239/240		0.030	0.040	0.08	0.05	~~U~~	PU
Strontium 90	10098-97-2	0.96	0.40	0.9	2	~~U~~	Y
Technetium 99	14133-76-7	1800	34	5	5		TC
Tritium	10028-17-8	830	140	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		70		U	GAM
Iron 59		U		40	30	U	GAM
Chromium 51	14392-02-0	U		300		U	GAM
Cobalt 60	10198-40-0	50	7.7		30		GAM
Zinc 65	17982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		60		U	GAM
Cesium 134	17967-70-9	U		6		U	GAM
Cesium 137	10045-97-3	U		6	20	U	GAM
Europium 152	14683-23-9	U		10	40	U	GAM
Europium 154	15585-10-1	U		8	40	U	GAM
Radium 226	13982-67-7	U		10		U	GAM
Thorium 228	14274-82-9	U		10		U	GAM
Thorium 232	7440-29-1	U		30		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-01

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG5

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-01
Dept sample id 7106-001
Received 10/02/92
Client sample id B07FG5
Matrix WATER
Collected 09/30/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	-0.33	1.4	2	3	~~U~~	80A
Gross Beta	Beta	-0.50	1.0	2	4	~~U~~	80B
Total Uranium (ug/L)	7440-61-1	2.5	0.61	0.07		—	U_T
Plutonium 238	13981-16-3	-0.003	0.035	0.07	0.05	U	PU
Plutonium 239/240		0.010	0.021	0.03	0.05	U	PU
Strontium 90	10098-97-2	0.25	0.33	1	2	U	Y
Technetium 99	14133-76-7	2.2	0.68	1	5	J	TC
Tritium	10028-17-8	-42	110	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		20	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3046

N210060-20

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG6

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-20
Dept sample id 7106-020
Received 10/12/92
Client sample id B07FG6
Matrix WATER
Collected 10/08/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	-0.22	3.2	3	3	~~U~~	80A
Gross Beta	Beta	200	5.6	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	4.7	1.1	0.07		—	U_T
Plutonium 238	13981-16-3	0.020	0.034	0.06	0.05	U	PU
Plutonium 239/240		-0.013	0.027	0.06	0.05	U	PU
Strontium 90	10098-97-2	0.31	0.48	1	2	~~U~~	Y
Technetium 99	14133-76-7	500	19	6	5		TC
Tritium	10028-17-8	1200	150	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

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~~UJ~~ J
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UR
~~R~~ J
5/4/93

4/27/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3040

N210060-14

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FG9

SDG	7106	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N210060-14	Client sample id	B07FG9
Dept sample id	7106-014	Matrix	WATER
Received	10/07/92	Collected	10/05/92
		Chain of custody id	EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	Q
Gross Alpha	Alpha	1.5	1.6	2	3	~~U~~	80A	
Gross Beta	Beta	9.3	1.6	2	4	—	80B	
Total Uranium (ug/L)	7440-61-1	2.4	0.59	0.07		—	U_T	
Plutonium 238	13981-16-3	0.021	0.031	0.05	0.05	~~U~~	PU	UR
Plutonium 239/240		0.010	0.031	0.07	0.05	~~U~~	PU	UR
Strontium 90	10098-97-2	0.16	0.69	1	2	U	Y	
Technetium 99	14133-76-7	0.69	1.4	3	5	U	TC	
Tritium	10028-17-8	370	120	200	400	~~J~~	H	~~R~~ J
GAMMA SCAN ANALYTES								
Potassium 40	13966-00-2	U		200		U	GAM	
Iron 59		U		90	30	U	GAM	5/4/93
Chromium 51	14392-02-0	U		600		U	GAM	
Cobalt 60	10198-40-0	U		10	30	U	GAM	
Zinc 65	17982-39-3	U		30		U	GAM	
Ruthenium 106	13967-48-1	U		100		U	GAM	
Cesium 134	17967-70-9	U		10		U	GAM	
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM	
Thorium 228	14274-82-9	U		20		U	GAM	
Thorium 232	7440-29-1	U		50		U	GAM	

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Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.22
Report date	02/02/93

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N210060-18

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH0

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-18
Dept sample id 7106-018
Received 10/09/92

Client sample id B07FH0
Matrix WATER
Collected 10/07/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	8.2	3.8	3	3	—	80A
Gross Beta	Beta	130	4.6	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	6.1	1.5	0.07		—	U_T
Plutonium 238	13981-16-3	0.025	0.061	0.1	0.05	~~U~~	PU
Plutonium 239/240		0.006	0.049	0.09	0.05	~~U~~	PU
Strontium 90	10098-97-2	0.019	0.29	1	2	~~U~~	Y
Technetium 99	14133-76-7	300	16	9	5	—	TC
Tritium	10028-17-8	200	120	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-03

TMA NORCAL

REPORTING GROUP 7106

DATA SHEET

B07FH1

SDG	7106	Client	Westinghouse Hanford
Contact	Dinkar Kharkar	Contract	MBH-SVV-069262
Lab sample id	N210060-03	Client sample id	B07FH1
Dept sample id	7106-003	Matrix	WATER
Received	10/05/92	Collected	10/01/92
		Chain of custody id	EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-2.3	2.4	3	3	~~U~~	80A
Gross Beta	Beta	100	4.0	2	4		80B
Total Uranium (ug/L)	7440-61-1	4.5	1.1	0.07			U_T
Plutonium 238	13981-16-3	-0.018	0.026	0.05	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.021	0.66	1	2	U	Y
Technetium 99	14133-76-7	270	13	6	5		TC
Tritium	10028-17-8	170	120	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		20		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

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Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-DS
Version	2.22
Report date	02/02/93

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TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

N210060-06

B07FH6

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-06
Dept sample id 7106-006
Received 10/06/92
Client sample id B07FH6
Matrix WATER
Collected 10/02/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	1.4	1.8	3	3	~~U~~	80A
Gross Beta	Beta	5.3	1.6	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	2.4	0.58	0.07		—	U_T
Plutonium 238	13981-16-3	-0.003	0.021	0.05	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.18	0.84	1	2	U	Y
Technetium 99	14133-76-7	0.49	2.7	9	5	U	TC
Tritium	10028-17-8	2700	190	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		900		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		200		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		70		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
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N210060-07

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH7

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-07
Dept sample id 7106-007
Received 10/06/92
Client sample id B07FH7
Matrix WATER
Collected 10/02/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.068	1.7	3	3	~~U~~	80A
Gross Beta	Beta	6.6	1.5	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	2.9	0.70	0.07		—	U_T
Plutonium 238	13981-16-3	0.004	0.037	0.07	0.05	U	PU
Plutonium 239/240		-0.007	0.007	0.04	0.05	U	PU
Strontium 90	10098-97-2	0.14	1.1	1	2	U	Y
Technetium 99	14133-76-7	1.9	2.9	9	5	U	TC
Tritium	10028-17-8	3000	190	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		20	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
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Version 2.22
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N210060-08

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FH8

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-08
Dept sample id 7106-008
Received 10/06/92

Client sample id B07FH8
Matrix WATER
Collected 10/02/92
Chain of custody id EFL-1020

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	3.0	2.7	3	3	—	80A
Gross Beta	Beta	9.3	1.8	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	5.3	1.3	0.07		—	U_T
Plutonium 238	13981-16-3	-0.010	0.021	0.05	0.05	U	PU
Plutonium 239/240		0.005	0.010	0.02	0.05	U	PU
Strontium 90	10098-97-2	-0.24	0.53	1	2	~~U~~	Y
Technetium 99	14133-76-7	3.2	2.1	6	5	~~U~~	TC
Tritium	10028-17-8	220	120	200	400	~~J~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		10	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

N210060-09

B07FJ1

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-09
Dept sample id 7106-009
Received 10/06/92
Client sample id B07FJ1
Matrix WATER
Collected 10/02/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	Alpha	0.48	1.6	2	3	~~U~~	80A
Gross Beta	Beta	19	2.0	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	2.2	0.53	0.07		—	U_T
Plutonium 238	13981-16-3	-0.011	0.035	0.07	0.05	U	PU
Plutonium 239/240		-0.004	0.007	0.03	0.05	U	PU
Strontium 90	10098-97-2	2.4	2.0	4	2	~~U~~	Y
Technetium 99	14133-76-7	46	6.5	10	5	—	TC
Tritium	10028-17-8	2100	170	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		70	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		40		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-10

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FJ2

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-10
Dept sample id 7106-010
Received 10/06/92

Client sample id B07FJ2
Matrix WATER
Collected 10/02/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	1.2	1.6	2	3	U	80A
Gross Beta	Beta	25	2.2	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	2.2	0.52	0.07		—	U_T
Plutonium 238	13981-16-3	0.003	0.021	0.05	0.05	U	PU
Plutonium 239/240		-0.003	0.007	0.03	0.05	U	PU
Strontium 90	10098-97-2	0.19	0.82	1	2	U	Y
Technetium 99	14133-76-7	41	3.7	4	5		TC
Tritium	10028-17-8	2600	180	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-11

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FK1

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-11
Dept sample id 7106-011
Received 10/06/92

Client sample id B07FK1
Matrix WATER
Collected 10/02/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	15	4.4	2	3	—	80A
Gross Beta	Beta	360	7.4	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	5.4	1.3	0.07		—	U_T
Plutonium 238	13981-16-3	0.010	0.021	0.03	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	-0.25	0.71	0.9	2	U	Y
Technetium 99	14133-76-7	810	30	9	5		TC
Tritium	10028-17-8	4300	220	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		30		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-04

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FK8

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-04
Dept sample id 7106-004
Received 10/05/92
Client sample id B07FK8
Matrix WATER
Collected 10/01/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	8.2	4.1	3	3	—	80A
Gross Beta	Beta	410	7.8	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	6.0	1.4	0.07		—	U_T
Plutonium 238	13981-16-3	-0.016	0.031	0.07	0.05	U	PU
Plutonium 239/240		0.004	0.016	0.03	0.05	U	PU
Strontium 90	10098-97-2	0.60	0.37	1	2	~~U~~	Y
Technetium 99	14133-76-7	1100	31	7	5		TC
Tritium	10028-17-8	4100	210	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		300		U	GAM
Iron 59		U		100	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		30	30	U	GAM
Zinc 65	17982-39-3	U		40		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		20		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		30	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		40		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		60		U	GAM

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Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

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N210060-05

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FK9

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-05
Dept sample id 7106-005
Received 10/05/92

Client sample id B07FK9
Matrix WATER
Collected 10/01/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	2.6	3.4	3	3	~~U~~	80A
Gross Beta	Beta	330	7.1	2	4	—	80B
Total Uranium (ug/L)	7440-61-1	2.4	0.57	0.07		—	U_T
Plutonium 238	13981-16-3	-0.002	0.018	0.04	0.05	U	PU
Plutonium 239/240		0	0.005	0.02	0.05	U	PU
Strontium 90	10098-97-2	0.26	0.75	1	2	U	Y
Technetium 99	14133-76-7	720	21	5	5	—	TC
Tritium	10028-17-8	3100	190	200	400	—	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		100		U	GAM
Iron 59		U		90	30	U	GAM
Chromium 51	14392-02-0	U		700		U	GAM
Cobalt 60	10198-40-0	15	11		30	J	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	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	13982-67-7	U		40		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

5/4/93

4/27/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3028

N210060-02

TMA NORCAL
REPORTING GROUP 7106

DATA SHEET

B07FM3

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-02
Dept sample id 7106-002
Received 10/02/92

Client sample id B07FM3
Matrix WATER
Collected 09/30/92
Chain of custody id WHC-N-4461

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	Alpha	-0.94	1.4	3	3	~~U~~	80A
Gross Beta	Beta	-2.8	1.1	2	4	~~U~~	80B
Total Uranium (ug/L)	7440-61-1	2.6	0.64	0.07		—	U_T
Plutonium 238	13981-16-3	0.038	0.023	0.03	0.05	J	PU
Plutonium 239/240		-0.019	0.023	0.05	0.05	U	PU
Strontium 90	10098-97-2	0.26	0.97	1	2	U	Y
Technetium 99	14133-76-7	2.7	1.8	5	5	U	TC
Tritium	10028-17-8	-39	110	200	400	~~U~~	H
GAMMA SCAN ANALYTES							
Potassium 40	13966-00-2	U		200		U	GAM
Iron 59		U		80	30	U	GAM
Chromium 51	14392-02-0	U		800		U	GAM
Cobalt 60	10198-40-0	U		20	30	U	GAM
Zinc 65	17982-39-3	U		30		U	GAM
Ruthenium 106	13967-48-1	U		100		U	GAM
Cesium 134	17967-70-9	U		10		U	GAM
Cesium 137	10045-97-3	U		10	20	U	GAM
Europium 152	14683-23-9	U		20	40	U	GAM
Europium 154	15585-10-1	U		20	40	U	GAM
Radium 226	13982-67-7	U		20		U	GAM
Thorium 228	14274-82-9	U		20		U	GAM
Thorium 232	7440-29-1	U		50		U	GAM

4/27/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

9613473.3047

ATTACHMENT 4

DATA VALIDATION SUPPORTING DOCUMENTATION

9613473.3048

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

PROJECT: 200-BP-1	VALIDATOR: [illegible]	DATE: 4/23/93
LABORATORY: TMA	DATA PACKAGE: B07FF7-TMA-380	
SAMPLES/MATRIX: Water		
B07FF7	B07FG2	B07FG9	B07FH7	B07FK1
B07FF8	B07FG4	B07FH0	B07FH8	B07FK8
B07FF9	B07FG5	B07FH1	B07FJ1	B07FK9
B07FG1	B07FG6	B07FH6	B07FJ2	B07FM3

1. Completeness

1.1 Completeness Checklist (Complete the appropriate checklist for each analysis type and attach).

2. Calibration

2.1 Initial Calibration

Was instrument calibrated within specified time period or annually? Yes No N/A

If NO, qualify all associated data as unusable (R).

Was each detector used for the associated data calibrated? Yes No N/A

If NO, qualify all associated data as unusable (R).

Are calibration standards NIST traceable or equivalent? Yes No N/A

If NO, qualify all associated data as unusable (R).

Were calibration standards expired? Yes No N/A

If YES, qualify all associated data as unusable (R).

Comments:

9613473.3049

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

2.2 Continuing Calibration

Is check source identified by activity and radionuclides? **Yes** No N/A

If NO, qualify all associated data as estimated (J).

Has check source been counted daily? **Yes** No N/A

If NO, qualify all associated data as unusable (R).

Are check source counts within ±3S control limits? **Yes** No N/A

If NO, qualify all associated data as unusable (R).

Have background counts been performed at least weekly and before and after all field and QC samples associated with the SDG? **Yes** No N/A

If NO, qualify all associated results as unusable (R).

Are background counts within ±3S control limits? Yes **No** N/A

If NO, qualify all associated results as unusable (R).

Comments:

The background control check samples for the following parameters in the detectors listed below were out of the control limits of 3 standard deviations. The sample results have been qualified as defined below:

Parameter	Detector w/ Bkgd out of CL	Assoc. Samples	Qualifiers
Gross beta	GPB111	B07FG4	~~R~~ J 5/10/93
Tritium	5	All samples	J for detects and UR for non-detects
Tc-99	LBG45	B07FJ1	R
Sr-90	~~GB~~ GPB208 5/4/93	B07FK8/H8 B07FJ9/G4 B07FH0/G2 B07FG6	UR/~~R~~ J 5/10/93 5/10/93

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

3. Blanks

Have reagent/method/field blanks been analyzed with the SDG? Yes No N/A

If NO, qualify all results >LLD as estimated (J).

Are positive results reported in the reagent/method/field blanks? Yes No N/A

If YES, qualify positive results less than the MDA as nondetects (U). Qualify sample results <10X the blank value but greater than the MDA as estimated (J).

Can blank results be verified/calculated properly? Yes No N/A

Comments: See the following page for details.

9613473.3051

TMA NORCAL
REPORTING GROUP 7106

N210060-27

REAGENT BLANK

Reagent Blank

SDG 7106
Contact Dinkar Kharkar
Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-27
Dept sample id 7106-027
Matrix WATER
Material

PARAMETER	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Technetium 99 GAMMA SCAN ANALYTES	14133-76-7	5X 33.5 6.7 10x6.7=67	1.4	3	5		TC

Associated with sample B07FJ1 only.

4/23/93 ~~the sample result is greater than 4 times the blank result- therefore, no qualification is required.~~

The sample result is less than 10 times the blank result, therefore the TC-99 result ~~for~~ sample B07FJ1 has been qualified as estimated (J).

4/23/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-DS
Version 2.22
Report date 02/02/93

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

4. Detection Limits and Sample Results

Can LLDs and MDAs be verified? (Yes) No N/A

If NO, qualify all results as estimated detects (J) or estimated nondetects (UJ).

Do reported results meet the detection limit requirements? (Yes) No N/A

Note discrepancies in the validation report narrative.

Can reported results be verified? 5/6/93 ~~Yes~~ (No) N/A

If NO, note missing data in the validation report. Correct results on the photocopied report forms and include in the validation report.

Comments: The total uranium results cannot be verified with the information we have been provided to date. Qualify assoc. results as estimated (J).

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

5. Radiometric and Gravimetric Yields

Were spikes/tracers/chemical yields analyzed in each SDG and/or sample as appropriate for the analytical method? **Yes** No N/A

If NO or if inappropriate tracers were used qualify associated results as unusable (R).

Was a field blank used for the spike/tracer/chemical yield analysis? Yes **No** N/A

If YES, note in the validation narrative.

Is spike/tracer/chemical yield recovery within the limits of 30-105% for sample results <4X the spike activity? Yes **No** N/A

Verify the spike recoveries and qualify associated results as follows:

%R:	<30%	30-105%	>105%	>115%
<LLD	R	acceptable	UJ	R
>LLD	R	acceptable	J	R

Comments:

Alpha spec

Pu-242 Tracer recovery for samples B07FG9, B07FF8, B07FG4, B07FH0, and the laboratory blank were below 30%. Therefore the assoc. results for Pu-238 & Pu-239/240 have been qualified as unusable (R/uR).

Sr-90

The chemical yield for the Sr-90 analysis in sample B07FJ1 was less than 30%. Therefore the assoc. sample results has been qualified as unusable (uR).

Tc-99

The Tc-99 chemical yield was below 30% for sample B07FJ1. Therefore the assoc. result has been qualified as unusable (R).

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

6. Duplicate Samples and Analyses

Has at least one duplicate analysis been performed for every ~~10~~ 20 samples in the SDG? **Yes** No N/A

4/23/93

If NO, qualify all associated results as estimated (J).

Has the field blank been used for duplicate or MS/MSD analysis? Yes **No** N/A

Are RPD values ≤35% for results >5X the LLD and within ±2X the LLD for results <5X the LLD? Yes **No** N/A

If NO, qualify associated results <LLD as estimated nondetects (UJ) and all associated results >LLD as estimated detects (J).

Comments:

The RPD for gross beta is out of control limits. All assoc. sample results have been qualified as estimated (J/UJ).

9613473.3055

N210060-23

TMA NORCAL

REPORTING GROUP 7106

REPLICATE

B07FG5

SDG	7106		Client Westinghouse Hanford
Contact	Dinkar Kharkar		Contract MBH-SVV-069262
REPLICATE		ORIGINAL	
Lab sample id	N210060-23	Lab sample id N210060-01	Client sample id B07FG5
Dept sample id	7106-023	Dept sample id 7106-001	Matrix WATER
		Received 10/02/92	Collected 09/30/92
			Chain of custody id WHC-N-4461

PARAMETER	REPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	0.37	1.8	3	3	U	80A	-0.33	1.4	2	U	-	
Gross Beta	6.4	1.5	2	4		80B	-0.50	1.0	2	U	200	89
Total Uranium (ug/L)	2.6	0.62	0.07			U_T	2.5	0.61	0.07		4	55
Technetium 99	2.6	3.7	9	5	U	TC	2.2	0.68	1	J	17	236
Tritium	-33	110	200	400	U	H	-42	110	200	U	-	
GAMMA SCAN ANALYTES												
Potassium 40	U		90		U	GAM	U		300	U	-	
Iron 59	U		50	30	U	GAM	U		90	U	-	
Chromium 51	U		600		U	GAM	U		800	U	-	
Cobalt 60	U		9	30	U	GAM	U		20	U	-	
Zinc 65	U		20		U	GAM	U		40	U	-	
Ruthenium 106	U		90		U	GAM	U		100	U	-	
Cesium 134	U		8		U	GAM	U		20	U	-	
Cesium 137	U		8	20	U	GAM	U		20	U	-	
Europium 152	U		20	40	U	GAM	U		30	U	-	
Europium 154	U		10	40	U	GAM	U		20	U	-	
Radium 226	U		20		U	GAM	U		30	U	-	
Thorium 228	U		20		U	GAM	U		20	U	-	
Thorium 232	U		30		U	GAM	U		70	U	-	

4/23/93

Lab id	TMAN
Protocol	WHC-HEIS
Version	Ver 1.0
Form	DVD-REP
Version	2.22
Report date	02/02/93

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

7. Laboratory Control Samples

Are LCS results within the control limits of 80-120% — Yes (No) N/A

If NO, qualify results as follows:

%R:	<50%	50-79%	>120%
Results < LLD:	R	UJ	R
Results > LLD:	R	J	R

Has at least one LCS been analyzed with the SDG? — (Yes) No N/A

If NO, qualify all associated results as estimated (J).

Comments:

The LCS %R for gross alpha was 73%. All associated sample results have been qualified as estimated (UJ/J).

9613473.3057

N210060-21

TMA NORCAL

REPORTING GROUP 7106

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7106
Contact Dinkar Kharkar

Client Westinghouse Hanford
Contract MBH-SVV-069262

Lab sample id N210060-21
Dept sample id 7106-021

Matrix WATER
Material

PARAMETER	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	44	4.3	1	3		80A	60.0	2.4	73	75-125	
Gross Beta	110	4.2	2	4		80B	107	4.3	103	74-126	
Total Uranium (ug/L)	17	4.0	0.07			U_T	16.3	0.65	104	60-140	
Plutonium 238	0.003	0.027	0.05	0.05	U	PU	0	0			
Plutonium 239/240	0.89	0.13	0.04	0.05		PU	0.901	0.036	99	76-124	
Strontium 90	4.7	1.1	0.9	2		Y	4.01	0.16	117	55-145	
Technetium 99	26	2.3	4	5		TC	25.5	1.0	102	79-121	
Tritium	3100	190	200	400		H	2710	110	114	79-121	
GAMMA SCAN ANALYTES											
Potassium 40	U		100		U	GAM					
Iron 59	U		20	30	U	GAM					
Chromium 51	U		60		U	GAM					
Cobalt 60	220	21		30		GAM	249	10	88	76-124	
Zinc 65	U		30		U	GAM					
Ruthenium 106	U		80		U	GAM					
Cesium 134	U		10		U	GAM					
Cesium 137	220	18		20		GAM	247	9.9	89	76-124	
Europium 152	U		20	40	U	GAM					
Europium 154	U		10	40	U	GAM					
Radium 226	U		20		U	GAM					
Thorium 228	U		10		U	GAM					
Thorium 232	U		50		U	GAM					

3/LCS

4/23/93

Lab id TMAN
Protocol WHC-HEIS
Version Ver 1.0
Form DVD-LCS
Version 2.22
Report date 02/02/93

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

8. Holding Times

Have all samples/analyses been completed within 5 half-lives or 180 days, whichever comes first? (Yes) No N/A

If NO, qualify all associated results >LLD as estimated detects (J) and all associated results <LLD as estimated non-detects (UJ). For gross exceedances (>2X criteria) qualify all associated results as unusable (R).

Comments: No qualification is required.

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9. Method Specific and Other Quality Control

9.1 Gas Proportional Counters

Are field and QC sample preparations outside the range of the self absorption curves? Yes (No) N/A

If YES, qualify all associated data as estimated (J).

Are initial detector efficiencies <20%? (Yes) No N/A

If YES, qualify all associated data as unusable (R).

Have statistical tests been performed routinely (at least weekly)? (Yes) No N/A

If NO, qualify all associated data as estimated (J).

Have stability verifications been performed after each gas change? Yes No (N/A)

If NO, qualify all associated data as estimated (J).

Gross Beta

Comments:

The background control check for gross beta, Sample B07F64-Detector GPB III was below the control limits. Therefore the assoc. sample result has been qualified as unusable (R).

Gross alpha & gross beta.
The gross alpha & beta analyses were performed on GMT 353, 356, and 358 of 1992. The referenced CCV data on the calculation sheets was performed on the same day as the assoc. sample analysis. However, only the CCV data for GMT 353 was provided. This is acceptable since the available calibration data was performed within 1 week of the sample analysis.

Tc-99 & Sr-90: The 1993 CCV data used to validate Tc-99 & Sr-90 was obtained from SDG B07FG0-TMA-374.

9613473.3060

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9.2 Alpha Spectroscopy

Has detector system been calibrated across the energy range of interest? **Yes** No N/A

If NO, qualify all results as unusable (R).

Is detector resolution adequate to identify each peak centroid? **Yes** No N/A

If NO or if resolution cannot be determined, qualify all results as unusable (R).

Is resolution at least 20 keV FWHM? Yes No **N/A**

If NO, qualify all results as estimated (J).

Do check source efficiencies agree within 5% of initial calibration efficiencies or are they within the control limits or ±3S of the mean? ~~cal. data has been requested.~~ 5/5/93 **Yes** No N/A

If NO, qualify all associated results as unusable (R).

Was each sample spiked with a tracer? **Yes** No N/A

If NO, qualify all associated results as unusable (R).

Are tracer recoveries within the control limits of 30 to 105%? Yes **No** N/A

If NO, qualify all results as follows:

%R:	**<30%**	30-105%	>105%	>115%
Results <LLD:	R	acceptable	UJ	R
Results >LLD:	R	acceptable	J	R

Comments:

4/23/93

The tracer %R is below 30% for the ~~So~~ samples B07FG9, B07FF8, B07FG4, B07FH0, and the Laboratory blank. Therefore, the ISSOR. results for Pu-238 & Pu-239/240 have been qualified as unusable (R/UR).

The SS-X detectors are the same as the detectors labeled LBAS-X1 on the A SPEC. EEC sheet as per the project coordinator at WHC.

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9.3 Gamma Spectroscopy

Does efficiency calibration approximate a smooth semi-log curve? Yes No N/A

If NO, qualify all results as unusable (R).

Have geometry or matrix factors been accounted for in all analyses? Yes No N/A

If NO, qualify all associated results as unusable (R).

Does the detector calibration cover the energy range of interest and at least 0 to 2 MeV? Yes No N/A

If NO, qualify all results outside the energy range as unusable (R).

Is resolution of the detector system adequate and less than 5 FWHM? Yes No N/A

If NO, qualify all results as estimated (J).

Comments:

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9.4 Alpha Emitting Radium Isotopes

Have single radium isotopes (Ra-223, Ra-224, Ra-226) been reported? Yes No N/A

If YES, qualify all results attributed to a single radium isotope as estimated (J) if the contribution to the total from individual isotopes is unknown.

Can time from sample precipitation to counting be verified? Yes No N/A

If NO, qualify all associated results >MDA as estimated (J).

Have barium interferences been identified and accounted for? Yes No N/A

If NO, qualify all associated results with elevated barium levels as estimated (J).

Has counting efficiency for Ra-226 been determined for each SDG? Yes No N/A

If NO, qualify all associated results as unusable (R).

Have blanks been analyzed with each group to check for possible radium contamination in the reagents? Yes No N/A

If NO, qualify all associated results as estimated (J).

If sample was preserved at collection has analysis been completed within 180 days or 5 half-lives? Yes No N/A

If NO, qualify results >LLD as estimated detects (J) and results < LLD as estimated non-detects (UJ).

If samples were not preserved, were samples received within 5 days of sampling? Yes No N/A

- Were samples preserved at the laboratory upon receipt? Yes No N/A
- Were samples held after preservation for at least 16 days? Yes No N/A

If NO, to any of the above, qualify associated sample results as estimated (J).

Comments: This analysis was not performed.

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9.5 Radium 226 Analysis using Scintillation (Lucas) Cell Counting

Is calibration data present and can it be associated with the samples? Yes No N/A

If NO, qualify associated sample results as unusable (R).

Was the counting system calibrated each day that samples were analyzed? Yes No N/A

If NO, qualify associated results as estimated (J).

Was the counting system calibrated after replacing the scintillation cell? Yes No N/A

If NO, qualify associated results as estimated (J) if the cell has a previously determined calibration constant and unusable (R) if no constant is available for the replacement cell.

Were blanks analyzed with each sample group to check for radium contamination in reagents? Yes No N/A

If NO, qualify associated results as estimated (J).

If sample was preserved at collection has analysis been completed within 180 days or 5 half-lives? Yes No N/A

If NO, qualify results >LLD as estimated detects (J) and results < LLD as estimated non-detects (UJ).

If samples were not preserved, were samples received within 5 days of sampling? Yes No N/A

- Were samples preserved at the laboratory upon receipt? Yes No N/A
- Were samples held after preservation for at least 16 days? Yes No N/A

If NO, to any of the above, qualify associated sample results as estimated (J).

Comments: This analysis was not performed.

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9.6 Tritium Analysis by Liquid Scintillation Counting

Do calibration standard matrices match the sample matrices? Yes No N/A

If NO, qualify associated results as estimated (J).

Has at least one calibration standard been processed with the samples? Yes No N/A

If NO, qualify results associated with runs lacking calibration standards as unusable (R).

Have results for counting efficiency determination been provided? Yes No N/A

If NO, qualify all associated results as unusable (R).

Do tritium levels in the blanks exceed the MDA? Yes No N/A

If YES, qualify associated results less than 10X the background tritium level (blanks) as estimated (J).

Have blanks been analyzed with each sample run to check for potential contamination in the chemical reagents? Yes No N/A

If NO, qualify associated results as estimated (J).

Comments:

5/4/93

~~The tritium bkgd. value was above the control limits. Therefore, all assoc. results have been qualified as unusable (R/UR).~~

Therefore, all assoc. undetected results have been qualified as unusable (UR) and all detected results have been qualified as estimated (J).

5/4/93

RADIOCHEMISTRY DATA VALIDATION CHECKLIST

9.7 ~~Fluorometric~~ phosphorimetry Analysis of Uranium 4/28/93

Has the laboratory provided evidence that cation and anion interferences are negligible for the matrix or that matrix interferences have been accounted for? Yes No N/A

If NO, qualify associated results as estimated (J).

Has the laboratory provided a description of the method of fusion standardization or provided data supporting fusion standardization? Yes No N/A

If NO, qualify associated results as estimated (J).

Was calibration performed immediately prior to sample analysis? Yes No N/A

If NO, qualify associated results as estimated (J).

Comments:

FILENAME: FF7-GRAB.WK1

SDG	HEIS#	Lab No.	Detector GAW/GRB	Spl. Amt.	Count Time	Gr-Alpha Counts	Alpha Bkgd cpm	Alpha Eff.	Alpha X-talk	Gr-Beta Counts	Beta Bkgd cpm	Beta Eff.	Beta X-Talk
B07FF7	B07FG5	7106-001	109	0.3	100	6	0.079	0.082	0.006	91	1.05	0.406	0.324
	B07FM3	7106-002	110	0.3	100	3	0.077	0.069	0.006	73	1.486	0.401	0.356
	B07FH1	7106-003	112	0.3	100	14	0.083	0.06	0.006	2775	1.253	0.4	0.375
	B07FK8	7106-004	113	0.3	100	122	0.107	0.084	0.006	11072	1.051	0.406	0.322
	B07FK9	7106-005	114	0.3	100	77	0.096	0.082	0.006	9137	1.088	0.406	0.325
	B07FH6	7106-006	102	0.3	100	18	0.094	0.086	0.006	307	1.604	0.406	0.32
	B07FH7	7106-007	103	0.3	100	12	0.113	0.084	0.006	295	1.167	0.406	0.323
	B07FH8	7106-008	102	0.3	100	25	0.103	0.066	0.006	412	1.604	0.4	0.364
	B07FJ1	7106-009	103	0.3	100	20	0.134	0.107	0.006	640	1.187	0.414	0.289
	B07FJ2	7106-010	104	0.3	100	20	0.081	0.097	0.006	802	1.135	0.41	0.301
	B07FK1	7106-011	105	0.3	100	149	0.083	0.086	0.006	9807	1.348	0.406	0.32
	B07FF7	7106-012	106	0.3	100	127	0.092	0.053	0.006	21735	1.514	0.4	0.412
	B07FG1	7106-013	107	0.3	100	10	0.081	0.095	0.006	236	1.026	0.41	0.302
	B07FG9	7106-006	108	0.3	100	17	0.066	0.091	0.006	366	1.093	0.408	0.31
	B07FF8	7106-015	104	0.3	100	12	0.091	0.088	0.006	338	1.123	0.407	0.316
	B07FF9	7106-016	105	0.3	100	40	0.075	0.099	0.006	2102	1.343	0.411	0.298
	B07FG4	7106-017	111	0.3	200	163	0.119	0.054	0.006	37373	1.084	0.4	0.407
	B07FH0	7106-018	113	0.3	100	69	0.097	0.071	0.006	3657	1.048	0.402	0.348
	B07FG2	7106-019	114	0.3	100	25	0.086	0.09	0.006	263	1.088	0.408	0.313
	B07FG6	7106-020	115	0.3	100	41	0.108	0.067	0.006	5521	1.079	0.4	0.362
	LCS	7106-021	107	1	100	463	0.082	0.15	0.006	3318	1.015	0.422	0.26
	BLANK	7106-022	108	1	100	10	0.082	0.134	0.006	76	1.063	0.42	0.27

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FILENAME: FF7-GRAB.WK1

SDG	HEIS#	Lab No.	Alpha Rslt Calc	Alpha Rslt Rptd	Beta Rslt Calc	Beta Rslt Rptd	Alpha MDA Calc	Alpha MDA Rptd	Beta MDA Calc	Beta MDA Rptd
B07FF7	B07FG5	7106-001	-0.33	-0.33	-0.5	-0.5	2.4	2.4	1.8	1.8
	B07FM3	7106-002	-0.93	-0.94	-2.8	-2.8	2.8	2.8	2.1	2.1
	B07FH1	7106-003	-2.56	-2.33	99.6	99.6	3.4	3.3	2.0	2.0
	B07FK8	7106-004	8.15	8.23	405.0	405.0	2.7	2.7	1.8	1.8
	B07FK9	7106-005	2.43	2.55	333.7	334.0	2.6	2.6	1.8	1.8
	B07FH6	7106-006	1.35	1.36	5.3	5.3	2.5	2.5	2.2	2.2
	B07FH7	7106-007	-0.07	-0.07	6.6	6.6	2.8	2.8	1.9	1.9
	B07FH8	7106-008	3.01	3.01	9.3	9.3	3.4	3.4	2.2	2.2
	B07FJ1	7106-009	0.49	0.48	18.9	18.9	2.4	2.4	1.8	1.8
	B07FJ2	7106-010	1.20	1.21	25.1	25.1	2.1	2.1	1.8	1.8
	B07FK1	7106-011	14.46	14.60	356.7	356.0	2.3	2.3	2.0	2.0
	B07FF7	7106-012	-3.32	-0.34	810.4	810.0	4.0	4.0	2.2	2.2
	B07FG1	7106-013	0.17	0.18	4.9	4.9	2.1	2.1	1.7	1.7
	B07FG9	7106-006	1.46	1.46	9.3	9.3	2.0	2.0	1.8	1.8
	B07FF8	7106-015	0.26	0.26	8.3	8.3	2.4	2.4	1.8	1.8
	B07FF9	7106-016	3.14	3.11	71.7	71.6	1.9	1.9	2.0	2.0
	B07FG4	7106-017	-11.67	-9.30	698.0	698.0	3.2	3.2	1.3	1.3
	B07FH0	7106-018	8.05	8.18	132.2	132.0	3.1	3.1	1.8	1.8
	B07FG2	7106-019	2.59	2.59	5.5	5.5	2.3	2.3	1.8	1.8
	B07FG6	7106-020	-0.51	-0.22	203.2	203.0	3.4	3.4	1.8	1.8
	LCS	7106-021	13.10	13.10	33.1	33.1	0.4	0.4	0.5	0.5
	BLANK	7106-022	0.07	0.07	-0.3	-0.3	0.4	0.4	0.5	0.5

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FILENAME: FF7-TC.WK1

SDG	HEIS	Lab No.	Det. ID	Spl Amt.	P-Factor	Yield	Elapsed time (days)	Lambda	Decay	TC-99 Net CPM	Count Time	Bkg. cpm	TC-99 Result Calc.	Result Rptd	MDA Calc.	MDA Rptd.
B07FF7	B07FG5	7106-001	LBG 12	0.2	2.34	0.5058	101.59	8.9E-09	1.00	0.21	1036.	0.63	2	2	1	1
	B07FM3	7106-002	LBG 11	0.2	2.34	0.406	100.98	8.9E-09	1.00	0.21	101.2	0.54	3	3	4	5
	B07FH1	7106-003	LBG 1	0.2	2.34	0.4984	96.96	8.9E-09	1.00	25.63	51.5	0.63	271	271	5	6
	B07FK8	7106-004	LBG 2	0.2	2.34	0.4228	96.96	8.9E-09	1.00	88.92	51.5	0.54	1108	1108	6	7
	B07FK9	7106-005	LBG 3	0.2	2.34	0.5518	96.96	8.9E-09	1.00	75.83	51.5	0.51	724	724	4	5
	B07FH6	7106-006	LBG 16	0.2	2.34	0.3336	95.96	8.9E-09	1.00	0.03	59.1	0.62	0.5	0.5	8	9
	B07FH7	7106-007	LBG 1	0.2	2.34	0.3279	95.96	8.9E-09	1.00	0.12	51.3	0.13	2	2	4	9
	B07FH8	7106-008	LBG 10	0.2	2.34	0.4569	95.96	8.9E-09	1.00	0.27	51.5	0.59	3	3	6	6
	B07FJ1	7106-009	LBG 3	0.2	2.34	0.2406	109.88	8.9E-09	1.00	2.12	61.6	0.51	46	46	9	10
	B07FJ2	7106-010	LBG 4	0.2	2.34	0.4205	95.96	8.9E-09	1.00	3.27	143.2	0.73	41	41	4	4
	B07FK1	7106-011	LBG 13	0.2	2.34	0.338	95.96	8.9E-09	1.00	51.8	51.5	0.54	808	808	7	9
	B07FF7	7106-012	LBG 14	0.2	2.34	0.3107	92.96	8.9E-09	1.00	149.98	51.5	0.61	2544	2544	9	10
	B07FG1	7106-013	LBG 15	0.2	2.34	0.5658	92.96	8.9E-09	1.00	0.12	186.1	0.69	1.1	1.1	3	3
	B07FG9	7106-006	LBG 16	0.2	2.34	0.4565	92.96	8.9E-09	1.00	0.06	186.1	0.62	0.7	0.7	3	3
	B07FF8	7106-015	LBG 3	0.2	2.34	0.3711	92.97	8.9E-09	1.00	0.09	59.1	0.51	1.3	1.3	6	7
	B07FF9	7106-016	LBG 4	0.2	2.34	0.6925	90.97	8.9E-09	1.00	20.19	59.1	0.73	154	160	4	4
	B07FG4	7106-017	LBG 9	0.2	2.34	0.5301	91.97	8.9E-09	1.00	181.27	59.1	0.65	1802	1802	5	5
	B07FH0	7106-018	LBG 10	0.2	2.34	0.3068	91.97	8.9E-09	1.00	17.34	59.1	0.59	298	298	8	9
	B07FG2	7106-019	LBG 11	0.2	2.34	0.4756	90.97	8.9E-09	1.00	0.37	59.1	0.54	4	4	5	5
	B07FG6	7106-020	LBG 12	0.2	2.34	0.4393	90.97	8.9E-09	1.00	41.31	59.1	0.63	496	496	6	6
	LCS	7106-021	LBG 4	1	2.34	0.5793	0	8.9E-09	1.00	2.83	101.2	0.73	5	4	0.7	0.8
	BLANK	7106-022	LBG 3	1	2.34	0.5507	0	8.9E-09	1.00	0.13	101.2	0.51	0.2	0.2	0.6	0.7

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FILENAME: FF7-SR.WK1

SDG	HEIS	Lab No.	Spl Amt.	P-Factor	Yield	Elapsed time (days)	Lambda	Ingrowth	Decay	Y-90 Net CPM	Count Time	Bkg. cpm	Sr90 Result Calc.	Result Rptd	MDA Calc.	MDA Rptd.
B07FF7	B07FG5	7106-001	1	1.859	0.5993	91.48	6.86E-05	0.00625	0.9937	0.176	33	0.3204	0.25	0.25	0.6	1.1
	B07FM3	7106-002	1	1.859	0.398	91.48	6.86E-05	0.00625	0.9937	0.121	33	0.4195	0.26	0.26	1.1	1.1
	B07FH1	7106-003	1	1.859	0.5515	90.48	6.86E-05	0.00619	0.9938	0.014	33	0.46	0.02	0.02	0.8	1.1
	B07FK8	7106-004	1	1.859	0.5704	90.48	6.86E-05	0.00619	0.9938	0.407	33	0.4197	0.60	0.60	0.8	1.0
	B07FK9	7106-005	1	1.859	0.4889	90.48	6.86E-05	0.00619	0.9938	0.152	33	0.4225	0.26	0.26	0.9	1.1
	B07FH6	7106-006	1	1.859	0.5508	89.48	6.86E-05	0.00612	0.9939	0.116	33	0.4053	0.18	0.18	0.8	1.1
	B07FH7	7106-007	1	1.859	0.5374	89.48	6.86E-05	0.00612	0.9939	0.088	33	0.4269	0.14	0.14	0.8	1.1
	B07FH8	7106-008	1	1.859	0.5933	89.48	6.86E-05	0.00612	0.9939	-0.168	33	0.4414	-0.24	-0.24	0.8	1.1
	B07FJ1	7106-009	1	1.859	0.1455	89.48	6.86E-05	0.00612	0.9939	0.422	33	0.4607	2.44	2.44	3.2	4.1
	B07FJ2	7106-010	1	1.859	0.6855	89.48	6.86E-05	0.00612	0.9939	0.153	33	0.5369	0.19	0.19	0.7	1.0
	B07FK1	7106-011	1	1.859	0.631	89.48	6.86E-05	0.00612	0.9939	-0.188	33	0.4292	-0.25	-0.25	0.7	0.9
	B07FF7	7106-012	1	1.859	0.6505	86.48	6.86E-05	0.00591	0.9941	-0.191	33	0.41	-0.25	-0.25	0.7	0.9
	B07FG1	7106-013	1	1.859	0.4754	86.48	6.86E-05	0.00591	0.9941	0.038	33	0.4501	0.07	0.07	1.0	1.3
	B07FG9	7106-006	1	1.859	0.5973	86.48	6.86E-05	0.00591	0.9941	0.112	33	0.3923	0.16	0.16	0.7	1.0
	B07FF8	7106-015	1	1.859	0.6815	85.48	6.86E-05	0.00584	0.9942	0.064	33	0.4196	0.08	0.08	0.6	0.9
	B07FF9	7106-016	1	1.859	0.7475	83.48	6.86E-05	0.00571	0.9943	0.132	33	0.4051	0.15	0.15	0.6	0.9
	B07FG4	7106-017	1	1.859	0.5865	84.48	6.86E-05	0.00578	0.9942	0.668	33	0.4235	0.96	0.96	0.8	0.9
	B07FH0	7106-018	1	1.859	0.6088	84.48	6.86E-05	0.00578	0.9942	0.014	33	0.4637	0.02	0.02	0.8	1.0
	B07FG2	7106-019	1	1.859	0.7589	83.48	6.86E-05	0.00571	0.9943	-0.252	33	0.4749	-0.28	-0.28	0.6	0.9
	B07FG6	7106-020	1	1.859	0.5865	83.48	6.86E-05	0.00571	0.9943	0.213	33	0.4592	0.31	0.31	0.8	1.3
	LCS	7106-021	1	1.859	0.6687	0	6.86E-05	0	1.0000	3.727	33	0.4349	4.67	4.67	0.7	0.9
	BLANK	7106-022	1	1.859	0.5657	0	6.86E-05	0	1.0000	0.263	33	0.4233	0.39	0.39	0.8	1.0

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FILENAME: FF7-PU.WK1

SDG	HEIS No.	Lab No.	Det.	Spl Amt	Detector Eff.	Sample Count Time (min)	Bkgd Count Time (min)	Tracer Gross Counts	Tracer Bkgd Counts	Spike Act.	Tracer Recovery	PU-239 Gr-Cnts	PU-239 Bkgd Cnts	Pu-239 Lambda
B07FF7	B07FG5	7106-001	SS-28	1	0.3834	721.93	1089.1	635	1	4.86	0.4716	5	2	7.78E-08
	B07FM3	7106-002	SS-29	1	0.3924	721.93	1089.1	588	11	4.86	0.4218	1	6	7.78E-08
	B07FH1	7106-003	SS-30	1	0.385	721.93	1089.1	843	0	4.86	0.6241	1	1	7.78E-08
	B07FK8	7106-004	SS-31	1	0.3623	721.48	1089.1	560	1	4.86	0.4403	2	1	7.78E-08
	B07FK9	7106-005	SS-32	1	0.3687	721.48	1089.1	950	0	4.86	0.7348	1	1	7.78E-08
	B07FH6	7106-006	SS-33	1	0.3713	721.48	1089.1	818	1	4.86	0.6278	0	0	7.78E-08
	B07FH7	7106-007	SS-34	1	0.3738	721.48	1089.1	594	2	4.86	0.4522	0	2	7.78E-08
	B07FH8	7106-008	SS-35	1	0.3502	721.05	1089.1	848	0	4.86	0.6910	3	1	7.78E-08
	B07FJ1	7106-009	SS-36	1	0.375	721.05	1089.1	625	0	4.86	0.4756	0	1	7.78E-08
	B07FJ2	7106-010	SS-37	1	0.4062	721.05	1089.1	640	1	4.86	0.4491	0	1	7.78E-08
	B07FK1	7106-011	SS-38	1	0.3992	721.05	1089.1	851	0	4.86	0.6083	1	1	7.78E-08
	B07FF7	7106-012	SS-39	1	0.4142	720.33	1089.47	845	1	4.86	0.5823	0	1	7.78E-08
	B07FG1	7106-013	SS-40	1	0.4147	720.33	1089.47	866	0	4.86	0.5965	0	0	7.78E-08
	B07FG9	7106-006	SS-07	1	0.2314	729.72	1141.48	428	2	4.86	0.5200	7	5	7.78E-08
	B07FF8	7106-015	SS-08	1	0.2636	729.72	1141.48	386	3	4.86	0.4109	9	5	7.78E-08
	B07FF9	7106-016	SS-09	1	0.359	729.17	1141.48	668	3	4.86	0.5236	2	3	7.78E-08
	B07FG4	7106-017	SS-12	1	0.279	728.82	1141.27	457	13	4.86	0.4540	13	7	7.78E-08
	B07FH0	7106-018	SS-14	1	0.2761	728.82	1141.27	363	5	4.86	0.3679	7	6	7.78E-08
	B07FG2	7106-019	SS-23	1	0.3111	727.32	1141.27	593	10	4.86	0.5335	12	8	7.78E-08
	B07FG6	7106-020	SS-24	1	0.3223	727.32	1141.27	670	15	4.86	0.5797	6	10	7.78E-08
	LCS	7106-021	SS-25	1	0.3043	727.32	1141.27	663	3	4.86	0.6146	273	5	7.78E-08
	BLANK	7106-022	SS-26	1	0.2818	727.32	1141.27	735	6	4.86	0.7340	7	6	7.78E-08

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FILENAME: FF7-PU.WK1

SDG	HEIS No.	Lab No.	Pu-239 Decay Factor	Pu-238 Gr-Cnts	Pu-238 Bkgd Cnts	Pu-238 Lambda	Pu-238 Decay Factor	Pu239 Calc.	Pu239 Rptd	Pu239 MDA Calc	MDA Rptd	Pu238 Calc.	Pu238 Rptd.	Pu238 MDA Calc	MDA Rptd
B07FF7	B07FG5	7106-001	0.9999	12	13	2.20E-05	0.9842	0.01	0.01	0.02	0.03	-0.004	-0.003	0.05	0.07
	B07FM3	7106-002	0.9999	11	1	2.20E-05	0.9842	-0.02	-0.02	0.04	0.05	0.038	0.038	0.01	0.03
	B07FH1	7106-003	0.9999	8	15	2.20E-05	0.9842	0.00	0.00	0.01	0.02	-0.018	-0.018	0.04	0.05
	B07FK8	7106-004	0.9999	5	9	2.20E-05	0.9842	0.00	0.00	0.01	0.03	-0.016	-0.016	0.05	0.07
	B07FK9	7106-005	0.9999	8	9	2.20E-05	0.9842	0.00	0.00	0.01	0.02	-0.002	-0.002	0.03	0.04
	B07FH6	7106-006	0.9999	8	9	2.20E-05	0.9842	0.00	0.00	0.00	0.02	-0.003	-0.003	0.03	0.05
	B07FH7	7106-007	0.9999	12	11	2.20E-05	0.9842	-0.01	-0.01	0.02	0.04	0.004	-0.004	0.05	0.07
	B07FH8	7106-008	0.9999	7	11	2.20E-05	0.9843	0.01	0.01	0.01	0.02	-0.010	-0.010	0.03	0.48
	B07FJ1	7106-009	0.9999	10	13	2.20E-05	0.9843	-0.00	-0.00	0.01	0.03	-0.011	-0.011	0.05	0.07
	B07FJ2	7106-010	0.9999	6	5	2.20E-05	0.9843	-0.00	-0.00	0.01	0.03	0.003	0.003	0.03	0.05
	B07FK1	7106-011	0.9999	9	5	2.20E-05	0.9843	0.00	0.00	0.01	0.02	0.010	0.010	0.02	0.03
	B07FF7	7106-012	0.9999	3	2	2.20E-05	0.9843	-0.00	-0.00	0.01	0.02	0.003	0.003	0.01	0.02
	B07FG1	7106-013	0.9999	2	3	2.20E-05	0.9843	0.00	0.00	0.00	0.02	-0.003	-0.003	0.02	0.03
	B07FG9	7106-006	0.9999	6	2	2.20E-05	0.9841	0.01	0.01	0.04	0.07	0.021	0.021	0.03	0.05
	B07FF8	7106-015	0.9999	12	10	2.20E-05	0.9841	0.02	0.02	0.05	0.08	0.012	0.011	0.07	0.10
	B07FF9	7106-016	0.9999	15	18	2.20E-05	0.9841	-0.00	-0.00	0.02	0.04	-0.010	-0.010	0.05	0.07
	B07FG4	7106-017	0.9999	11	11	2.20E-05	0.9841	0.03	0.03	0.05	0.08	0.000	0.000	0.06	0.09
	B07FH0	7106-018	0.9999	17	13	2.20E-05	0.9841	0.01	0.01	0.06	0.09	0.025	0.025	0.08	0.12
	B07FG2	7106-019	0.9999	7	10	2.20E-05	0.9841	0.01	0.02	0.04	0.06	-0.011	-0.011	0.04	0.07
	B07FG6	7106-020	0.9999	15	9	2.20E-05	0.9841	-0.01	-0.01	0.04	0.06	0.020	0.020	0.04	0.06
	LCS	7106-021	0.9999	7	6	2.20E-05	0.9841	0.89	0.89	0.03	0.04	0.003	0.003	0.03	0.05
	BLANK	7106-022	0.9999	9	7	2.20E-05	0.9841	0.00	0.00	0.03	0.04	0.006	0.006	0.03	0.05

FILENAME: FF7-H3.WK1

SDG	HEIS#	Lab No.	Det ID	Gross Counts	Count Time	Sample Amount	Bkgnd cpm	Decay Factor	Detect Eff.	Tritium Result Calc.	Result Rptd	MDA Calc	MDA Rptd
B07FF7	B07FG5	7106-001	5	333	100	0.01	3.53	0.98702	0.217	-42	-42	184	184
	B07FM3	7106-002	5	334	100	0.01	3.53	0.98701	0.224	-39	-38	178	178
	B07FH1	7106-003	5	437	100	0.01	3.53	0.98715	0.22	174	174	182	181
	B07FK8	7106-004	5	2371	100	0.01	3.53	0.98714	0.227	4057	4050	176	175
	B07FK8	7106-005	5	1848	100	0.01	3.53	0.98713	0.222	3073	3074	180	180
	B07FH6	7106-006	5	1625	100	0.01	3.53	0.98727	0.216	2687	2687	185	185
	B07FH7	7106-007	5	1832	100	0.01	3.53	0.98726	0.222	3040	3037	180	179
	B07FH8	7106-008	5	458	100	0.01	3.53	0.98725	0.216	222	222	185	184
	B07FJ1	7106-009	5	1375	100	0.01	3.53	0.98724	0.224	2082	2083	178	178
	B07FJ2	7106-010	5	1605	100	0.01	3.53	0.98723	0.218	2620	2616	183	183
	B07FK1	7106-011	5	2420	100	0.01	3.53	0.98722	0.22	4287	4290	182	181
	B07FF7	7106-012	5	3697	100	0.01	3.53	0.98766	0.221	6901	6886	181	180
	B07FG1	7106-013	5	335	100	0.01	3.53	0.98765	0.227	-36	-36	176	176
	B07FG9	7106-006	5	529	100	0.01	3.53	0.98764	0.219	367	367	182	182
	B07FF8	7106-015	5	330	100	0.01	3.53	0.98778	0.219	-48	-48	182	182
	B07FF9	7106-016	5	1664	100	0.01	3.53	0.98808	0.226	2645	2643	177	176
	B07FG4	7106-017	5	760	100	0.01	3.53	0.98791	0.223	832	834	179	179
	B07FH0	7106-018	5	449	100	0.01	3.53	0.9879	0.222	197	197	180	180
	B07FG2	7106-019	5	326	100	0.01	3.53	0.98805	0.222	-55	-55	180	180
	B07FG6	7106-020	5	965	100	0.01	3.53	0.98804	0.225	1240	1241	177	177
	LCS	7106-021	5	1881	100	0.3	3.53	1	0.219	105	105	6	6
	BLANK	7106-022	5	347	100	0.3	3.53	1	0.26	-0.3	-0.4	5	6

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