9002173

008966

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

MAY 10 1990

START

MAY 1990 RECEIVED EDMC

Mr. Robert R. Mooney, Head
Environmental Protection Section
Division of Radiation Protection
State of Washington
Department of Health
Airdustrial Center, Building 5
Mail Stop LE-13
Olympia, Washington 98504

Dear Mr. Mooney:

In response to your letter of April 13, 1990, requesting radiological results from groundwater wells associated with the 1100-EM-1 Operable Unit, the requested results are enclosed. Included in the enclosure are: (1) a map showing the locations of the monitoring wells which were sampled; (2) a table cross referencing well numbers and sample numbers; and (3) copies of the radiochemical analysis report prepared by the United States Testing Company.

The samples from which this analytical data was generated were collected as part of the Phase I Remedial Investigation of the 1100-EM-1 Operable Unit. All of the samples were filtered before analysis to remove any solids.

As was acknowledged in your letter, the enclosed results are a follow-up to verbal information provided by Mr. R. K. Stewart, Department of Energy Operable Unit Manager for the 1100-EM-1 Operable Unit to Ms. Lynn Albin of your staff on April 5, 1990. If you have any questions about the enclosed information, please call Mr. Stewart at (509) 376-6192.

Sincerely,

Steven H. Wisness
Hanford Project Manager

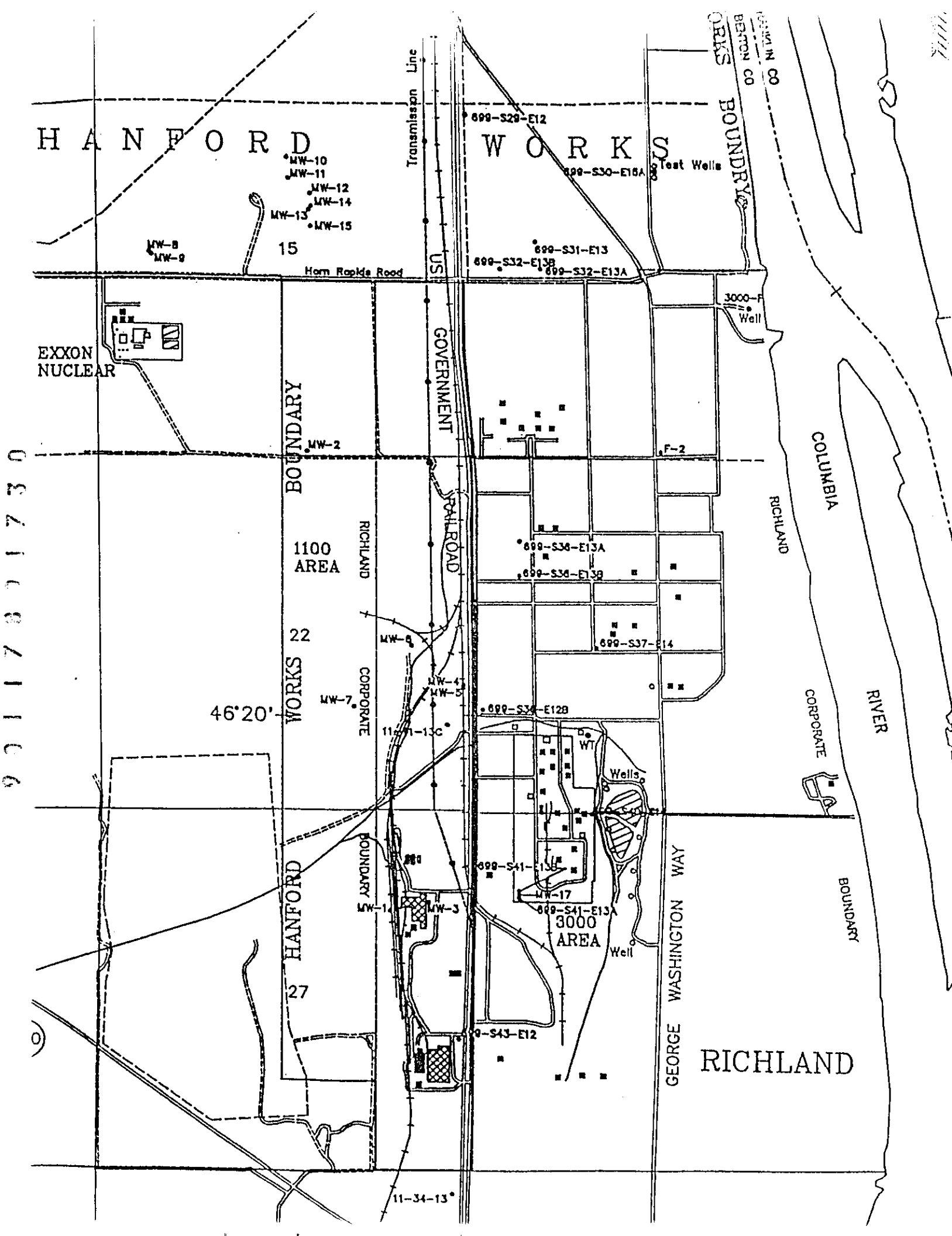
ERD:RKS

Enclosures: As stated

cc w/encl:
L. Goldstein, Ecology
D. Einan, EPA
Administrative Record, 1100-EM-1
(w/copy of Department of Health letter)

cc w/o encl:
T. M. Wintczak, WHC
S. W. Clark, WHC

9011730172 9


HANFORD WORKS
Transmission Line
699-S29-E12
699-S30-E15A
Test Wells
BOUNDARY
BENTON CO
MW-10
MW-11
MW-12
MW-14
MW-13
MW-15
MW-8
MW-9
15
Horn Rapids Road
699-S31-E13
699-S32-E13B
699-S32-E13A
3000-F
Well
EXXON NUCLEAR
US GOVERNMENT
BOUNDARY
MW-2
F-2
COLUMBIA
RIVER
RICHLAND
CORPORATE
BOUNDARY
1100 AREA
RAILROAD
699-S36-E13A
699-S36-E13B
22
MW-6
699-S37-E14
MW-4
MW-5
MW-7
46°20'
699-S38-E12B
11-31-13C
WT
Wells
HANFORD WORKS
BOUNDARY
MW-1
MW-3
699-S41-E13B
MW-17
699-S41-E13A
3000 AREA
Well
GEORGE WASHINGTON WAY
27
699-S43-E12
RICHLAND
11-34-13

TABLE

Identification of Groundwater Samples from 1100-EM-1 Monitoring Wells

Sample Number	Well Number	Description
B00006	MW-14	Horn Rapids Landfill - Deep in unconfined aquifer
B00009	MW-13	At MW-14 - Top of unconfined aquifer
B00012	MW-11	Horn Rapids Landfill
B00015	MW-11	(Duplicate)
B00017	MW-10	Horn Rapids Landfill
B00020	MW-7	Southwest of 1100-3 Pit
B00022	MW-6	East of 1100-3 Pit
B00024	MW-1	West of 1171 Building (Vehicle Maintenance)
B00027	MW-4	East of 1100-2 Pit - Top of unconfined aquifer
B00030	MW-5	At MW-4 - Deep in unconfined aquifer
B00032	MW-5	(Duplicate)
B00034	MW-2	North of 1100-3 Pit
B00036	MW-9	West of Horn Rapids Landfill - In confined aquifer
B00045	699-S41-E13B	W. of Richland Well Fld. - Deep unconf. aquifer
B00047	699-S41-E13A	W. of Richland Well Fld. - Top of unconf. aquifer
B00049	699-S40-E14	On west edge of Richland well field
B00051	MW-12	East of Horn Rapids Landfill
B00054	699-S37-E14	North of Richland well field
B00056	699-S43-E12	Southwest of Richland well field
B00060	Richland Well Field - West Wells	
B00062	Richland Well Field - East Wells	
B00065	MW-3	East of 1171 Building (Vehicle Maintenance)
B00067	Water Blank	
B00069	Equipment Blank	

9 0 1 1 7 3 9 1 7 3 2

Radiological

UNITED STATES TESTING COMPANY INC.
2500 GEORGE WASHINGTON WAY, RICHLAND, WA
RADIOCHEMICAL ANALYSIS REPORT Contract no B-A1064-A-1
Results reported on 900220

SAMPLE TYPE	COST#	ISOTOPE		RESULT	COUNTING ERROR	OVERALL ERROR	ANALYSIS SIZE	PERCENT MOIST	SAMPLE DATE	TIME	ON DATE	TIME	H C	GROUP	UST#
** Reported => 900220															
WATER	B00006	SR-90	121	* 6.99E-02 PCI/L	7.31E-01	7.40E-01(2S)	1.00E+00	L	900205	1100	9002051100	I	103	204440	
WATER	B00006	TOTAL RA	181	1.47E+00 PCI/L	3.74E-01	4.70E-01(2S)	1.00E+00	L	900205	1100	9002051100	I	103	204440	
WATER	B00009	SR-90	121	* 5.20E-02 PCI/L	6.80E-01	6.88E-01(2S)	1.00E+00	L	900205	1200	9002051200	I	103	204450	
WATER	B00009	TOTAL RA	181	1.58E+00 PCI/L	4.12E-01	5.18E-01(2S)	1.00E+00	L	900205	1200	9002051200	I	103	204450	
WATER	B00012	SR-90	121	* 3.88E-02 PCI/L	7.86E-01	7.92E-01(2S)	1.00E+00	L	900206	0854	9002060854	I	103	204460	
WATER	B00012	TOTAL RA	181	2.56E+00 PCI/L	4.98E-01	7.10E-01(2S)	1.00E+00	L	900206	0854	9002060854	I	103	204460	
WATER	B00015	SR-90	121	* 2.56E-01 PCI/L	7.96E-01	8.08E-01(2S)	1.00E+00	L	900206	0910	9002060910	I	103	204470	
WATER	B00015	TOTAL RA	181	2.03E+00 PCI/L	4.29E-01	5.68E-01(2S)	1.00E+00	L	900206	0910	9002060910	I	103	204470	
WATER	B00017	SR-90	121	* 3.93E-01 PCI/L	8.18E-01	8.30E-01(2S)	1.00E+00	L	900206	1100	9002061100	I	103	204480	
WATER	B00017	TOTAL RA	181	2.01E+00 PCI/L	4.43E-01	5.96E-01(2S)	1.00E+00	L	900206	1100	9002061100	I	103	204480	
WATER	B00030	TRITIUM	108	* 1.47E+02 PCI/L	1.37E+02	2.47E+02(2S)	5.00E-03	L	900212	1130	9002121130	I	103	204530	
WATER	B00030	BETA	111	6.50E+00 PCI/L	2.63E+00	2.69E+00(2S)	2.00E-01	L	900212	1130	9002121130	I	103	204530	
WATER	B00030	ALPHA	112	3.92E+00 PCI/L	1.83E+00	2.01E+00(2S)	2.00E-01	L	900212	1130	9002121130	I	103	204530	
WATER	B00032	TRITIUM	108	* 1.13E+02 PCI/L	1.37E+02	2.46E+02(2S)	5.00E-03	L	900212	1130	9002121130	I	103	204540	
WATER	B00032	BETA	111	7.48E+00 PCI/L	2.81E+00	2.88E+00(2S)	2.00E-01	L	900212	1130	9002121130	I	103	204540	
WATER	B00032	ALPHA	112	3.34E+00 PCI/L	1.71E+00	1.85E+00(2S)	2.00E-01	L	900212	1130	9002121130	I	103	204540	
WATER	B00034	TRITIUM	108	* 8.73E+01 PCI/L	1.37E+02	2.45E+02(2S)	5.00E-03	L	900212	1200	9002121200	I	103	204550	
WATER	B00034	BETA	111	8.18E+00 PCI/L	2.76E+00	2.85E+00(2S)	2.00E-01	L	900212	1200	9002121200	I	103	204550	
WATER	B00034	ALPHA	112	4.42E+00 PCI/L	1.99E+00	2.15E+00(2S)	2.00E-01	L	900212	1200	9002121200	I	103	204550	
WATER	B00036	TRITIUM	108	* 1.37E+02 PCI/L	1.36E+02	2.46E+02(2S)	5.00E-03	L	900212	1200	9002121200	I	103	204560	
WATER	B00036	BETA	111	6.45E+00 PCI/L	2.53E+00	2.58E+00(2S)	2.00E-01	L	900212	1200	9002121200	I	103	204560	
WATER	B00036	ALPHA	112	1.31E+00 PCI/L	1.09E+00	1.13E+00(2S)	2.00E-01	L	900212	1200	9002121200	I	103	204560	
WATER	B00045	TRITIUM	108	* 2.15E+02 PCI/L	1.30E+02	2.28E+02(2S)	5.00E-03	L	900214	0938	9002140938	I	103	204580	
WATER	B00047	TRITIUM	108	* 2.05E+02 PCI/L	1.31E+02	2.28E+02(2S)	5.00E-03	L	900214	1105	9002141105	I	103	204590	
WATER	B00051	TRITIUM	108	* 1.02E+02 PCI/L	1.35E+02	2.21E+02(2S)	5.00E-03	L	900214	1609	9002141609	I	103	204600	

25 Records listed

Trinity for B.H. Pool

* Denotes a result less than the overall error (nS) specifies the level of error, 1 sigma or 2 sigma

Preliminary, Unvalidated Data -- To
Be Used by Cognizant Engineer Only

9 0 1 1 7 3 0 1 7 3 3

Radioactivity Meas.

01-Mar-90 07:34 AM

UNITED STATES TESTING COMPANY INC.
2800 GEORGE WASHINGTON WAY, RICHLAND, WA
RADIOCHEMICAL ANALYSIS REPORT Contract no. B-A1064-A-I
Results reported on 900301

SAMPLE TYPE	CUST#	ISOTOPE	RESULT	COUNTING ERROR	OVERALL ERROR	ANALYSIS SIZE	PERCENT MOIST	SAMPLE DATE	TIME	ON DATE	TIME	H C	GROUP	UST#
** Reported => 900301														
WATER	B00020	SR-90 121	* 1.44E-01 PCI/L	6.36E-01	6.46E-01(2S)	1.00E+00	L	900207	0900	9002070900		I	103	204490
WATER	B00020	TOTAL RA 181	3.74E-01 PCI/L	2.08E-01	2.23E-01(2S)	1.00E+00	L	900207	0900	9002070900		I	103	204490
WATER	B00022	SR-90 121	*-4.13E-01 PCI/L	5.12E-01	5.28E-01(2S)	1.00E+00	L	900207	1200	9002071200		I	103	204500
WATER	B00022	TOTAL RA 181	2.55E-01 PCI/L	1.79E-01	1.89E-01(2S)	1.00E+00	L	900207	1200	9002071200		I	103	204500
WATER	B00024	SR-90 121	*-2.78E-02 PCI/L	6.28E-01	6.38E-01(2S)	1.00E+00	L	900207	1430	9002071430		I	103	204510
WATER	B00024	TOTAL RA 181	4.49E-01 PCI/L	2.32E-01	2.51E-01(2S)	1.00E+00	L	900207	1430	9002071430		I	103	204510
WATER	B00027	SR-90 121	*-4.96E-02 PCI/L	6.35E-01	6.41E-01(2S)	1.00E+00	L	900208	1100	9002081100		I	103	204520
WATER	B00027	TOTAL RA 181	* 1.97E-01 PCI/L	1.98E-01	2.05E-01(2S)	7.25E-01	L	900208	1100	9002081100		I	103	204520
WATER	B00030	SR-90 121	* 1.84E-02 PCI/L	7.04E-01	7.10E-01(2S)	1.00E+00	L	900212	1130	9002121130		I	103	204530
WATER	B00030	TOTAL RA 181	4.97E-01 PCI/L	2.60E-01	2.81E-01(2S)	8.50E-01	L	900212	1130	9002121130		I	103	204530
WATER	B00032	SR-90 121	* 9.05E-02 PCI/L	8.11E-01	8.17E-01(2S)	1.00E+00	L	900212	1130	9002121130		I	103	204540
WATER	B00032	TOTAL RA 181	3.59E-01 PCI/L	3.23E-01	3.35E-01(2S)	5.00E-01	L	900212	1130	9002121130		I	103	204540
WATER	B00034	SR-90 121	*-2.07E-01 PCI/L	7.02E-01	7.09E-01(2S)	1.00E+00	L	900212	1200	9002121200		I	103	204550
WATER	B00034	TOTAL RA 181	3.72E-01 PCI/L	2.01E-01	2.16E-01(2S)	1.00E+00	L	900212	1200	9002121200		I	103	204550
WATER	B00036	SR-90 121	*-3.03E-01 PCI/L	6.48E-01	6.53E-01(2S)	1.00E+00	L	900212	1200	9002121200		I	103	204560
WATER	B00036	TOTAL RA 181	2.28E-01 PCI/L	2.20E-01	2.28E-01(2S)	6.50E-01	L	900212	1200	9002121200		I	103	204560
WATER	B00045	BETA 111	4.87E+00 PCI/L	2.57E+00	2.61E+00(2S)	2.00E-01	L	900214	0938	9002140938		I	103	204580
WATER	B00045	ALPHA 112	6.02E+00 PCI/L	2.39E+00	2.67E+00(2S)	2.00E-01	L	900214	0938	9002140938		I	103	204580
WATER	B00045	SR-90 121	* 4.69E-01 PCI/L	8.16E-01	8.30E-01(2S)	1.00E+00	L	900214	0938	9002140938		I	103	204580
WATER	B00045	TOTAL RA 181	* 1.58E-01 PCI/L	1.54E-01	1.59E-01(2S)	1.00E+00	L	900214	0938	9002140938		I	103	204580
WATER	B00047	BETA 111	2.63E+00 PCI/L	2.17E+00	2.19E+00(2S)	2.00E-01	L	900214	1105	9002141105		I	103	204590
WATER	B00047	ALPHA 112	* 4.95E-01 PCI/L	7.59E-01	7.72E-01(2S)	2.00E-01	L	900214	1105	9002141105		I	103	204590
WATER	B00047	SR-90 121	* 1.20E-01 PCI/L	7.08E-01	7.17E-01(2S)	1.00E+00	L	900214	1105	9002141105		I	103	204590
WATER	B00047	TOTAL RA 181	* 6.83E-02 PCI/L	1.33E-01	1.35E-01(2S)	1.00E+00	L	900214	1105	9002141105		I	103	204590
WATER MW-12	B00051	BETA 111	3.46E+01 PCI/L	4.62E+00	5.30E+00(2S)	2.00E-01	L	900214	1609	9002141609		I	103	204600
WATER	B00051	ALPHA 112	7.56E+00 PCI/L	3.36E+00	3.45E+00(2S)	2.00E-01	L	900214	1609	9002141609		I	103	204600
WATER	B00051	SR-90 121	*-1.96E-01 PCI/L	6.63E-01	6.69E-01(2S)	1.00E+00	L	900214	1609	9002141609		I	103	204600
WATER	B00051	TOTAL RA 181	1.16E+00 PCI/L	3.45E-01	4.16E-01(2S)	9.75E-01	L	900214	1609	9002141609		I	103	204600
WATER	B00049	TRITIUM 108	* 6.81E+01 PCI/L	1.29E+02	2.33E+02(2S)	5.00E-03	L	900221	1030	9002211030		I	103	204610
WATER	B00049	BETA 111	*-8.25E-01 PCI/L	1.80E+00	1.81E+00(2S)	2.00E-01	L	900221	1030	9002211030		I	103	204610
WATER	B00049	ALPHA 112	1.13E+00 PCI/L	8.79E-01	9.29E-01(2S)	2.00E-01	L	900221	1030	9002211030		I	103	204610
WATER	B00054	TRITIUM 108	* 1.33E+02 PCI/L	1.32E+02	2.37E+02(2S)	5.00E-03	L	900221	0900	9002210900		I	103	204620
WATER	B00054	BETA 111	* 1.67E+00 PCI/L	2.06E+00	2.08E+00(2S)	2.00E-01	L	900221	0900	9002210900		I	103	204620
WATER	B00054	ALPHA 112	2.22E+00 PCI/L	1.34E+00	1.44E+00(2S)	2.00E-01	L	900221	0900	9002210900		I	103	204620
WATER S42-E12	B00056	TRITIUM 108	1.44E+03 PCI/L	1.79E+02	3.14E+02(2S)	5.00E-03	L	900221	1200	9002211200		I	103	204630
WATER	B00056	BETA 111	8.77E+00 PCI/L	2.85E+00	2.94E+00(2S)	2.00E-01	L	900221	1200	9002211200		I	103	204630
WATER	B00056	ALPHA 112	2.63E+00 PCI/L	1.90E+00	1.94E+00(2S)	2.00E-01	L	900221	1200	9002211200		I	103	204630

37 Records listed

Priority for B. H. Fox

MAR 1990 RECEIVED J.H. KESSNER

* Denotes a result less than the overall error (nS) specifies the level of error, 1 sigma or 2 sigma

9 0 1 1 7 3 0 1 7 3 4

Radiological

UNITED STATES TESTING COMPANY INC.
2800 GEORGE WASHINGTON WAY, RICHLAND, WA
RADIOCHEMICAL ANALYSIS REPORT Contract no. 8-A1064-A-I
Results reported on 900308

SAMPLE TYPE	CUST#	ISOTOPE		RESULT	COUNTING ERROR	OVERALL ERROR	ANALYSIS SIZE	PERCENT MOIST	SAMPLE DATE	TIME	ON DATE	TIME	H C	GROUP	UST#
** Reported => 900308															
WATER	B00049	SR-90	121	*-6.18E-02 PCI/L	6.92E-01	7.00E-01(2S)	1.00E+00	L	900221	1030	9002211030		I	103	204610
WATER	B00049	TOTAL RA	181	*-2.41E-02 PCI/L	6.60E-02	6.73E-02(2S)	1.00E+00	L	900221	1030	9002211030		I	103	204610
WATER	B00054	SR-90	121	* 2.27E-01 PCI/L	7.66E-01	7.75E-01(2S)	1.00E+00	L	900221	0900	9002210900		I	103	204620
WATER	B00054	TOTAL RA	181	1.96E-01 PCI/L	1.53E-01	1.60E-01(2S)	1.00E+00	L	900221	0900	9002210900		I	103	204620
WATER	B00056	SR-90	121	* 2.40E-01 PCI/L	7.95E-01	8.04E-01(2S)	1.00E+00	L	900221	1200	9002211200		I	103	204630
WATER	B00056	TOTAL RA	181	3.30E-01 PCI/L	1.84E-01	1.98E-01(2S)	1.00E+00	L	900221	1200	9002211200		I	103	204630
WATER	B00060	TRITIUM	108	* 2.97E+01 PCI/L	1.33E+02	2.45E+02(2S)	5.00E-03	L	900225	1340	9002251340		I	103	204640
WATER	B00060	BETA	111	* 7.84E-01 PCI/L	2.02E+00	2.03E+00(2S)	2.00E-01	L	900225	1340	9002251340		I	103	204640
WATER	B00060	ALPHA	112	1.04E+00 PCI/L	9.20E-01	9.61E-01(2S)	2.00E-01	L	900225	1340	9002251340		I	103	204640
WATER	B00060	TOTAL RA	181	* 2.08E-02 PCI/L	9.14E-02	9.31E-02(2S)	1.00E+00	L	900225	1340	9002251340		I	103	204640
WATER	B00062	TRITIUM	108	* 2.50E+02 PCI/L	1.42E+02	2.57E+02(2S)	5.00E-03	L	900225	1340	9002251340		I	103	204650
WATER	B00062	BETA	111	2.31E+00 PCI/L	2.11E+00	2.13E+00(2S)	2.00E-01	L	900225	1340	9002251340		I	103	204650
WATER	B00062	ALPHA	112	* 1.94E-01 PCI/L	5.48E-01	5.55E-01(2S)	2.00E-01	L	900225	1340	9002251340		I	103	204650
WATER	B00062	TOTAL RA	181	*-7.00E-02 PCI/L	4.75E-02	4.95E-02(2S)	1.00E+00	L	900225	1340	9002251340		I	103	204650

14 Records listed

Priority for B.H. Ford

* Denotes a result less than the overall error (nS) specifies the level of error, 1 sigma or 2 sigma

9 0 1 1 7 3 0 1 7 3

Radiological

15-Mar-90 10:40 AM

UNITED STATES TESTING COMPANY INC.
2800 GEORGE WASHINGTON WAY, RICHLAND, WA
RADIOCHEMICAL ANALYSIS REPORT Contract no. B-A1064-A-I
Results reported on 900315

SAMPLE TYPE	CUST#	ISOTOPE		RESULT	COUNTING ERROR	OVERALL ERROR	ANALYSIS SIZE	PERCENT MOIST	SAMPLE DATE	TIME	ON DATE	TIME	H C	GROUP	UST#
** Reported => 900315															
WATER	B00060	SR-90	121	* 9.39E-02 PCI/L	7.05E-01	7.14E-01(2S)	1.00E+00	L	900225	1340	9002251340		I	103	204640
WATER	B00062	SR-90	121	*-2.62E-01 PCI/L	6.47E-01	6.53E-01(2S)	1.00E+00	L	900225	1340	9002251340		I	103	204650
WATER	B00065	TRITIUM	108	* 2.22E+02 PCI/L	1.34E+02	2.36E+02(2S)	5.00E-03	L	900302	0651	9003020651		I	103	204660
WATER AW-3	B00065	BETA	111	1.47E+01 PCI/L	3.54E+00	3.70E+00(2S)	2.00E-01	L	900302	0651	9003020651		I	103	204660
WATER	B00065	ALPHA	112	1.70E+01 PCI/L	5.65E+00	5.95E+00(2S)	1.30E-01	L	900302	0651	9003020651		I	103	204660
WATER	B00065	SR-90	121	*-1.27E-01 PCI/L	6.62E-01	6.69E-01(2S)	1.00E+00	L	900302	0651	9003020651		I	103	204660
WATER	B00065	TOTAL RA	181	2.36E+00 PCI/L	4.70E-01	6.54E-01(2S)	1.00E+00	L	900302	0651	9003020651		I	103	204660
WATER Blank	B00067	TRITIUM	108	2.94E+02 PCI/L	1.36E+02	2.39E+02(2S)	5.00E-03	L	900302	0850	9003020850		I	103	204670
WATER	B00067	BETA	111	3.54E+00 PCI/L	2.24E+00	2.26E+00(2S)	2.00E-01	L	900302	0850	9003020850		I	103	204670
WATER	B00067	ALPHA	112	*-4.22E-01 PCI/L	1.10E-01	1.43E-01(2S)	2.00E-01	L	900302	0850	9003020850		I	103	204670
WATER	B00067	SR-90	121	* 1.68E-01 PCI/L	6.83E-01	6.91E-01(2S)	1.00E+00	L	900302	0850	9003020850		I	103	204670
WATER	B00067	TOTAL RA	181	* 4.17E-02 PCI/L	1.20E-01	1.22E-01(2S)	1.00E+00	L	900302	0850	9003020850		I	103	204670
WATER	B00069	TRITIUM	108	* 2.18E+02 PCI/L	1.35E+02	2.36E+02(2S)	5.00E-03	L	900302	0951	9003020951		I	103	204680
WATER	B00069	BETA	111	*-1.14E+00 PCI/L	1.76E+00	1.76E+00(2S)	2.00E-01	L	900302	0951	9003020951		I	103	204680
WATER	B00069	ALPHA	112	*-9.44E-02 PCI/L	3.01E-01	3.04E-01(2S)	2.00E-01	L	900302	0951	9003020951		I	103	204680
WATER	B00069	SR-90	121	* 6.55E-02 PCI/L	7.37E-01	7.47E-01(2S)	1.00E+00	L	900302	0951	9003020951		I	103	204680
WATER	B00069	TOTAL RA	181	*-1.74E-02 PCI/L	9.33E-02	9.44E-02(2S)	1.00E+00	L	900302	0951	9003020951		I	103	204680

17 Records listed

Priority for B.H. Ford

* Denotes a result less than the overall error (nS) specifies the level of error, 1 sigma or 2 sigma

CORRESPONDENCE DISTRIBUTION COVERSHEET

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Subject: Radiological Results from Groundwater Wells Associated with 1100-EM-1 OU

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