

Richard J. Thompson
XXXXXXXXXXXXXXXXXX
Secretary



EPS 89-251

STATE OF WASHINGTON
DEPARTMENT OF SOCIAL AND HEALTH SERVICES

Olympia, Washington 98504-0095

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September 29, 1989

Gregory P. Yuhas, Branch Chief
Emergency Preparedness and Radiological
Protection Branch
U.S. Nuclear Regulatory Commission
Region V
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596

Dear Mr. Yuhas:

As per the requirements of contract NRC-32-83-682, we are submitting this annual report for the 1988 calendar year comparing the analytical results from our state laboratory to the licensee's results for split/parallel environmental monitoring. Also included with this report are quality assurance results and a record of the services rendered during each calendar quarter of 1988.

If you have any questions or concerns, please call me at (206) 586-3303.

Sincerely,

Robert R. Mooney, Head
Environmental Protection Section
Division of Radiation Protection

RRM/CL/seg
Enclosure
File: G.2-3

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PDR STPRG ESGWA FDC

INTERCOMPARISON STUDY
EMSL, LV
1988

AIR FILTERS

NUCLIDE	MONTH	GRAND AVERAGE ±	EXPER SIGMA	EPA KNOWN	UNIT	DSHS REPORTED ± 2 SIGMA
ALPHA	03	22.62 ±	4.72	20.00	pCi/F	27.33 ± 0.90
ALPHA	08	8.89 ±	1.77	8.00	pCi/F	11.67 ± 1.00
BETA	03	53.29 ±	6.05	50.00	pCi/F	52.33 ± 0.90
BETA	08	28.71 ±	3.51	29.00	pCi/F	30.00 ± 1.00
Sr90	03	17.09 ±	2.43	17.00	pCi/F	13.67 ± 0.60
Sr90	08	7.79 ±	1.64	8.00	pCi/F	7.67 ± 0.90
Cs137	03	17.72 ±	3.05	16.00	pCi/F	23.00 ± 1.90
Cs137	08	12.64 ±	2.69	12.00	pCi/F	11.67 ± 0.70

DIET FOOD

NUCLIDE	MONTH	GRAND AVERAGE ±	EXPER SIGMA	EPA KNOWN	UNIT	DSHS REPORTED ± 2 SIGMA
K40	01	1217.57 ±	121.68	1230.00	mg/kg	1208.67 ± 50.00
K40	07	1224.74 ±	50.30	1240.00	mg/kg	1198.67 ± 40.00
Sr89	01	41.54 ±	12.89	46.00	pCi/kg	57.33 ± 8.60
Sr89	07	25.78 ±	10.67	33.00	pCi/kg	31.33 ± 5.00
Sr90	01	52.59 ±	5.66	55.00	pCi/kg	58.00 ± 2.70
Sr90	07	31.40 ±	5.93	34.00	pCi/kg	33.33 ± 2.00
I131	01	98.75 ±	8.09	102.00	pCi/kg	104.00 ± 10.00
I131	07	107.54 ±	7.79	107.00	pCi/kg	104.33 ± 6.00
Cs137	01	91.05 ±	6.52	91.00	pCi/kg	91.33 ± 4.00
Cs137	07	48.11 ±	2.82	49.00	pCi/kg	46.67 ± 3.00

MILK

NUCLIDE	MONTH	GRAND AVERAGE ±	EXPER SIGMA	EPA KNOWN	UNIT	DSHS REPORTED ± 2 SIGMA
K40	06	1588.86 ±	137.93	1600.00	mg/l	1518.67 ± 50.00
K40	10	1622.27 ±	98.53	1600.00	mg/l	1760.00 ± 60.00
Sr89	06	33.88 ±	11.92	40.00	pCi/l	46.00 ± 3.00
Sr89	10	31.73 ±	12.18	40.00	pCi/l	42.33 ± 9.20
Sr90	06	56.16 ±	10.10	60.00	pCi/l	60.33 ± 2.00
Sr90	10	55.84 ±	5.74	60.00	pCi/l	63.00 ± 3.20

INTERCOMPARISON STUDY
EMSL, LV
1988

MILK (cont.)

NUCLIDE	MONTH	GRAND AVERAGE ±	EXPER SIGMA	EPA KNOWN	UNIT	DSHS REPORTED ± 2 SIGMA
I131 *	02	4.17 ±	0.91	4.00	pCi/l	4.00 ± 0.68
I131	06	96.02 ±	8.92	94.00	pCi/l	70.67 ± 3.00
I131	10	89.95 ±	7.99	91.00	pCi/l	93.33 ± 4.50
Cs137	06	51.91 ±	3.60	51.00	pCi/l	48.67 ± 3.00
Cs137	10	49.88 ±	3.76	50.00	pCi/l	49.67 ± 2.90

WATER

NUCLIDE	MONTH	GRAND AVERAGE ±	EXPER SIGMA	EPA KNOWN	UNIT	DSHS REPORTED ± 2 SIGMA
ALPHA	01	3.87 ±	1.62	4.00	pCi/l	4.00 ± 0.90
ALPHA	03	5.58 ±	1.73	6.00	pCi/l	6.33 ± 1.10
ALPHA	04	44.83 ±	12.26	46.00	pCi/l	60.33 ± 1.30
ALPHA	05	9.40 ±	2.60	11.00	pCi/l	11.00 ± 1.50
ALPHA	07	12.23 ±	2.87	15.00	pCi/l	15.00 ± 2.00
ALPHA	09	7.58 ±	2.00	8.00	pCi/l	10.00 ± 1.90
ALPHA	10	38.96 ±	9.31	41.00	pCi/l	45.00 ± 4.00
ALPHA	11	8.83 ±	2.37	9.00	pCi/l	14.00 ± 2.20
BETA	01	8.30 ±	2.11	8.00	pCi/l	10.00 ± 1.00
BETA	03	12.90 ±	2.22	13.00	pCi/l	14.33 ± 0.90
BETA	04	57.80 ±	6.29	57.00	pCi/l	57.33 ± 1.70
BETA	05	11.88 ±	2.18	11.00	pCi/l	12.00 ± 0.90
BETA	07	5.73 ±	1.94	4.00	pCi/l	5.33 ± 0.90
BETA	09	10.45 ±	2.18	10.00	pCi/l	11.00 ± 1.20
BETA	10	50.42 ±	5.91	54.00	pCi/l	52.00 ± 2.20
BETA	11	9.66 ±	2.26	9.00	pCi/l	10.00 ± 1.10
Sr89	01	27.76 ±	5.63	30.00	pCi/l	30.00 ± 3.50
Sr89	04	5.56 ±	1.86	5.00	pCi/l	4.00 ± 3.00
Sr89	05	18.84 ±	5.84	20.00	pCi/l	16.67 ± 2.00
Sr89	10	9.91 ±	2.75	11.00	pCi/l	12.00 ± 4.00
Sr90	01	14.33 ±	1.56	15.00	pCi/l	14.33 ± 0.90
Sr90	04	5.13 ±	1.04	5.00	pCi/l	5.00 ± 0.90
Sr90	05	18.36 ±	3.50	20.00	pCi/l	19.00 ± 2.00
Sr90	10	9.46 ±	1.34	10.00	pCi/l	10.00 ± 1.20

INTERCOMPARISON STUDY
EMSL, LV
1988

WATER (Cont.)

NUCLIDE	MONTH	GRAND AVERAGE ±	EXPER SIGMA	EPA KNOWN	UNIT	DSHS REPORTED ± 2 SIGMA
Cr51	06	304.64 ±	31.60	302.00	pCi/l	226.67 ± 20.00
Cr51	10	248.74 ±	24.02	251.00	pCi/l	250.00 ± 26.00
Co60	02	69.28 ±	5.11	69.00	pCi/l	71.00 ± 4.00
Co60	04	50.78 ±	4.04	50.00	pCi/l	49.33 ± 2.00
Co60	06	15.95 ±	2.15	15.00	pCi/l	14.33 ± 2.00
Co60	10	25.51 ±	2.35	25.00	pCi/l	25.00 ± 2.00
Zn65	02	96.07 ±	7.31	94.00	pCi/l	95.67 ± 7.00
Zn65	06	103.14 ±	7.38	101.00	pCi/l	100.33 ± 6.00
Zn65	10	151.82 ±	9.20	151.00	pCi/l	150.00 ± 8.00
Ru106	02	99.59 ±	12.74	105.00	pCi/l	103.33 ± 19.00
Ru106	06	190.83 ±	16.03	195.00	pCi/l	172.00 ± 20.00
Ru106	10	144.17 ±	17.50	152.00	pCi/l	144.00 ± 17.00
I131 *	04	7.52 ±	1.25	7.50	pCi/l	7.33 ± 0.87
I131	08	77.29 ±	7.59	76.00	pCi/l	58.00 ± 4.00
I131	12	115.54 ±	14.48	115.00	pCi/l	120.67 ± 4.00
Cs134	02	60.66 ±	5.00	64.00	pCi/l	60.00 ± 4.00
Cs134	04	7.20 ±	1.63	7.00	pCi/l	7.00 ± 2.00
Cs134	06	19.30 ±	2.05	20.00	pCi/l	17.33 ± 2.00
Cs134	10	24.05 ±	2.16	25.00	pCi/l	26.00 ± 2.00
Cs134	10	14.34 ±	1.74	15.00	pCi/l	13.33 ± 1.90
Cs137	02	94.16 ±	6.35	94.00	pCi/l	90.00 ± 4.00
Cs137	04	8.04 ±	1.57	7.00	pCi/l	7.33 ± 1.00
Cs137	06	25.91 ±	3.05	25.00	pCi/l	25.33 ± 2.00
Cs137	10	15.77 ±	2.32	15.00	pCi/l	16.00 ± 2.00
Cs137	10	15.72 ±	1.69	15.00	pCi/l	16.00 ± 1.80
H3	02	3358.36 ±	337.80	3327.00	pCi/l	3368.33 ± 258.00
H3	06	5393.85 ±	504.93	5565.00	pCi/l	5295.67 ± 290.00
H3	10	2317.56 ±	238.51	2316.00	pCi/l	2301.33 ± 220.00

* Low Level Iodine, requiring resin extraction.

E.M.L. Intercomparison Study
 Environmental Measurements Laboratory
 New York
 1988

AIR FILTERS

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
Be-7	03/88	0.473E+04	0.452E+04	0.462 E +04	2
Mn-54	03/88	0.363E+03	0.369E+03	0.359 E +03	3
Co-57	03/88	0.162E+03	0.156E+03	0.138 E +03	2
Co-60	03/88	0.282E+03	0.277E+03	0.261 E +03	4
Sr-90	03/88	0.491E+01	0.504E+01	0.478 E +01	9
Cs-134	03/88	0.381E+03	0.336E+03	0.302 E +03	3
Cs-137	03/88	0.211E+03	0.226E+03	0.209 E +03	3
Pu-239	03/88	0.252E+01	0.249E+01	0.270 E +01	7
Am-241	03/88	0.302E+01	0.289E+01	0.110 E +01	45
U-234	03/88	0.252E+01	0.258E+01	0.270 E +01	14
U-238	03/88	0.253E+01	0.258E+01	0.240 E +01	16
U-PCI	03/88	0.505E+01	0.558E+01	0.520 E +01	11

Reported in pCi/F.

SOIL

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
K-40	03/88	0.600E+00	0.743E+00	0.792 E +00	23
Sr-90	03/88	0.146E+00	0.180E+00	0.141 E +00	14
Cs-137	03/88	0.400E+00	0.400E+00	0.386 E +00	6
Pu-239	03/88	0.410E -01	0.528E -01	0.510 E -01	11
Am-241	03/88	0.670E -02	0.671E -02	0.900 E -02	66
U-234	03/88	0.670E+00	0.606E+00	0.680 E +00	4
U-238	03/88	0.690E+00	0.603E+00	0.680 E +00	4
U-PCI	03/88	0.136E+01	0.147E+01	0.141 E +01	3

Reported in pCi/g.

* Mean of submitted data in range of 0.5 to 2.0 times EML value.

VEGETATION

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
K-40	03/88	0.360E+02	0.384E+02	0.452 E +02	3
Sr-90	03/88	0.109E+02	0.109E+02	0.116 E +02	0
Cs-137	03/88	0.462E+01	0.501E+01	0.521 E +01	2
Pu-239	03/88	0.450E -01	0.585E -01	0.920 E -01	6
Am-241	03/88	0.460E -01	0.445E -01	0.340 E -01	17
U-234	03/88	0.360E -01	0.337E -01	0.420 E -01	19
U-238	03/88	0.360E -01	0.339E -01	0.460 E -01	15
U-PCI	03/88	0.720E -01	0.877E -01	0.960 E -01	12

Reported in pCi/g.

WATER

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
H-3	03/88	0.207E+02	0.204E+02	0.274 E +02	1
Mn-54	03/88	0.680E+01	0.707E+01	0.624 E +01	1
Co-57	03/88	0.205E+01	0.192E+01	0.162 E +01	1
Co-60	03/88	0.203E+01	0.187E+01	0.172 E +01	2
Sr-90	03/88	0.530E+00	0.539E+00	0.550 E +00	5
Cs-134	03/88	0.356E+01	0.300E+01	0.264 E +01	2
Cs-137	03/88	0.184E+01	0.178E+01	0.161 E +01	3
Pu-239	03/88	0.243E -01	0.194E -01	0.140 E -01	7
Am-241	03/88	0.410E -02	0.414E -02	0.356 E -02	28
U-234	03/88	0.425E -02	0.400E -02	0.370 E -02	18
U-238	03/88	0.425E -02	0.415E -02	0.330 E -02	12
U-PCI	03/88	0.850E -02	0.886E -02	0.720 E -02	12

Reported in pCi/ml.

* Mean of submitted data in range of 0.5 to 2.0 times EML value.

E.M.L. Intercomparison Study
 Environmental Measurements Laboratory
 New York
 1988

AIR FILTERS

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
Be-7	09/87	0.896E+03	0.943E+03	0.107 E +04	7
Sr-89	09/87	0.383E+02	0.399E+02	0.624 E +02	6
Sr-90	09/87	0.369E+02	0.398E+02	0.357 E +02	4
Zr-95	09/87	0.188E+03	0.191E+03	0.205 E +03	6
Ru-106	09/87	0.251E+03	0.213E+03	0.306 E +03	10
Sb-125	09/87	0.963E+03	0.881E+03	0.990 E +03	2
Cs-137	09/87	0.290E+03	0.314E+03	0.272 E +03	3
Ce-144	09/87	0.406E+03	0.405E+03	0.373 E +03	0
Pu-239	09/87	0.523E+01	0.543E+01	0.588 E +01	8
U-234	09/87	0.170E+01	0.158E+01	0.138 E +01	22
U-238	09/87	0.171E+01	0.182E+01	0.177 E +01	16
U-PCI	09/87	0.494E+01	0.385E+01	0.315 E +01	14

Reported in pCi/F.

SOIL

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
K-40	09/87	0.200E+02	0.215E+02	0.263 E +02	4
Sr-90	09/87	0.127E+02	0.122E+02	0.946 E +01	2
Cs-137	09/87	0.211E+00	0.211E+00	0.195 E +00	19
Ra-226	09/87	0.636E+00	0.610E+00	0.825 E +00	12
Pu-239	09/87	0.290E -01	0.354E -01	0.408 E -01	16
U-234	09/87	0.124E+01	0.125E+01	0.121 E +01	3
U-238	09/87	0.120E+01	0.128E+01	0.121 E +01	3
U-PCI	09/87	0.244E+01	0.221E+01	0.251 E +01	1

Reported in pCi/g.

* Mean of submitted data in range of 0.5 to 2.0 times EML value.

VEGETATION

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
K-40	09/87	0.163E+03	0.158E+03	0.172 E +03	1
Sr-90	09/87	0.150E+02	0.141E+02	0.144 E +02	1
Cs-137	09/87	0.182E+01	0.201E+01	0.185 E +01	2
Ra-226	09/87	0.240E+00	0.226E+00	0.220 E +00	13
Pu-239	09/87	0.180E -01	0.191E -01	0.181 E -01	23
U-234	09/87	0.800E -01	0.642E -01	0.630 E -01	11
U-238	09/87	0.900E -01	0.676E -01	0.670 E -01	10
U-PCI	09/87	0.170E+00	0.205E+00	0.134 E +00	4

Reported in pCi/g.

WATER

<u>Nuclide</u>	<u>Mo/Yr</u>	<u>E. M. L. Known Value</u>	<u>Mean * Reported</u>	<u>D.S.H.S. Reported ± 2 sigma</u>	<u>Reported % Error</u>
H-3	09/87	0.191E+02	0.193E+02	0.231 E +02	2
Mn-54	09/87	0.228E+01	0.237E+01	0.239 E +01	3
Co-57	09/87	0.142E+00	0.148E+00	0.165 E +00	27
Co-60	09/87	0.227E+01	0.231E+01	0.230 E +01	3
Sr-90	09/87	0.252E+00	0.248E+00	0.242 E +00	6
Cs-137	09/87	0.228E+01	0.235E+01	0.230 E +01	3
Pu-239	09/87	0.266E+00	0.185E+00	0.221 E +00	3
U-234	09/87	0.540E -01	0.500E -01	0.500 E -01	6
U-238	09/87	0.540E -01	0.500E -01	0.520 E -01	5
U-PCI	09/87	0.108E+00	0.105E+00	0.104 E +00	3

Reported in pCi/ml.

* Mean of submitted data in range of 0.5 to 2.0 times EML value.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/M ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station 8	7626	12/05/88	Gr. Beta I-131	2.6 E-02 ± 0.2 E-02 <2. E-02	2.4 E-02 ± 3.0 E-03 * 1.18 E-03 ± 8.67 E-03
	" "		7655	12/12/88	Gr. Beta I-131	3.5 E-02 ± 0.2 E-02 <2. E-02	2.4 E-02 ± 3.0 E-03 * -1.23 E-03 ± 8.59 E-03
	" "		7676	12/19/88	Gr. Beta I-131	3.1 E-02 ± 0.2 E-02 <1. E-02	2.3 E-02 ± 3.0 E-03 * 2.50 E-03 ± 9.19 E-03
	" "		7685	12/27/88	Gr. Beta I-131	3.0 E-02 ± 0.2 E-02 <1. E-02	2.5 E-02 ± 3.0 E-03 * -2.87 E-03 ± 7.52 E-03
	Duplicate	Station 8	7850	Quarterly particulate composite	Be-7 Cs-134 Cs-137	9.6 E-02 ± 3.7 E-02 <2. E-03 <1. E-03	3.00 E-02 ± 3.43 E-03 * 0.00 E-01 ± 1.66 E-04 * 1.76 E-04 ± 1.79 E-04

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulate	Duplicate	Station #4	7436	10/03/88	Gr. Beta I-131	2.1 E-02 ± 0.2 E-02 <2. E-02	1.6 E-02 ± 2.0 E-03 * 2.32 E-03 ± 1.49 E-02
			7444	10/10/89	Gr. Beta I-131	7.5 E-02 ± 0.3 E-02 <2. E-02	4.4 E-02 ± 3.0 E-03 * -1.68 E-04 ± 1.30 E-02
			7459	10/17/88	Gr. Beta I-131	4.5 E-02 ± 0.2 E-02 <2. E-02	3.8 E-02 ± 3.0 E-03 * 1.50 E-03 ± 1.20 E-02
			7466	10/24/88	Gr. Beta I-131	3.3 E-02 ± 0.2 E-02 <2. E-02	2.9 E-02 ± 3.0 E-03 * -5.70 E-03 ± 1.23 E-02
			7511	10/31/88	Gr. Beta I-131	3.5 E-02 ± 0.2 E-02 <2. E-02	2.4 E-02 ± 3.0 E-03 * -1.56 E-02 ± 1.43 E-02
			7550	11/07/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <2. E-02	8.8 E-03 ± 2.0 E-03 * 2.68 E-03 ± 1.43 E-02
			7590	11/14/89	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <2. E-02	9.7 E-03 ± 2.2 E-03 * 2.46 E-03 ± 1.26 E-02
			7606	11/21/88	Gr. Beta I-131	1.6 E-02 ± 0.2 E-02 <1. E-02	1.6 E-02 ± 2.0 E-03 * -1.07 E-02 ± 2.02 E-02
			7617	11/28/88	Gr. Beta I-131	5. E-03 ± 1. E-03 <1. E-02	9.2 E-03 ± 1.9 E-03 * 2.90 E-03 ± 9.62 E-03
			7625	12/05/88	Gr. Beta I-131	3.5 E-02 ± 2. E-02 <2. E-02	2.7 E-02 ± 3.0 E-03 * 1.14 E-03 ± 1.11 E-02
			7654	12/12/88	Gr. Beta I-131	4.3 E-02 ± 0.2 E-02 <1. E-02	3.0 E-02 ± 3.0 E-03 * 1.84 E-03 ± 1.44 E-02
			7675	12/19/88	Gr. Beta I-131	3.9 E-02 ± 0.2 E-02 <1. E-02	2.7 E-02 ± 3.0 E-03 * -7.42 E-03 ± 1.00 E-02

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station #4	7684	12/27/88	Gr. Beta I-131	4. E-02 ± 0.2 E-02 <1. E-02	2.6 E-02 ± 3.0 E-03 * 2.23 E-03 ± 8.47 E-03
	" "	" "	7849	Quarterly particulate composite	Be-7	9.8 E-02 ± 3.7 E-02	3.67 E-02 ± 3.74 E-03
					Cs-134	<2. E-03	* -4.24 E-05 ± 1.41 E-04
					Cs-137	<1. E-03	* 7.16 E-06 ± 1.37 E-04
	Duplicate	Station #8	7437	10/03/88	Gr. Beta I-131	1.7 E-02 ± 0.2 E-02 <2. E-02	1.9 E-02 ± 3.0 E-03 * 1.96 E-03 ± 9.63 E-03
	" "		7445	10/10/88	Gr. Beta I-131	6.2 E-02 ± 0.3 E-02 <2. E-02	4.8 E-02 ± 4.0 E-03 * 7.64 E-03 ± 1.09 E-02
	" "		7460	10/17/88 (a)	Gr. Beta I-131	3.7 E-02 ± 0.2 E-02 <2. E-02	5.8 E-02 ± 1.5 E-02 9.56 E-03 ± 7.16 E-02
	" "		7467	10/24/88	Gr. Beta I-131	2.5 E-02 ± 0.2 E-02 <2. E-02	2.3 E-02 ± 3.0 E-03 * 2.13 E-03 ± 9.97 E-03
	" "		7512	10/31/88	Gr. Beta I-131	2.3 E-02 ± 0.2 E-02 <2. E-02	1.9 E-02 ± 3.0 E-03 * -4.85 E-03 ± 9.97 E-03
	" "		7551	11/07/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <2. E-02	1.0 E-02 ± 2.0 E-03 * -1.82 E-03 ± 9.45 E-03
" "		7591	11/14/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <1. E-02	7.8 E-03 ± 2.1 E-03 * 1.46 E-03 ± 1.13 E-02	
" "		7607	11/21/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <2. E-02	8.9 E-03 ± 2.2 E-03 * -1.66 E-02 ± 1.71 E-02	
" "		7618	11/28/88	Gr. Beta I-131	4. E-03 ± 1. E-03 <1. E-02	6.6 E-03 ± 1.8 E-03 * 4.45 E-03 ± 1.35 E-02	

* Denotes a result less than the detection limit.
(a) Sampler malfunction; low sampling time.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Discharge Station 27	4937	11/16/88 (a)	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	3.6 E 01 ± 1.6 E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 7.2 E 02 ± 2.2 E 02 6.9 E 00 ± 1.8 E 00	* 1.07 E+02 ± 2.44 E+01 * -6.91 E-01 ± 1.60 E+00 * 3.28 E+00 ± 3.49 E+00 * 1.92 E-01 ± 1.66 E+00 * 6.97 E-01 ± 1.76 E+00 * 4.89 E+00 ± 3.64 E+00 * 3.52 E-01 ± 3.41 E+00 * -1.09 E+00 ± 1.73 E+00 * 9.50 E-01 ± 1.78 E+00 * -2.56 E+00 ± 6.26 E+00 quarterly composite 2.9 E+01 ± 3.0 E+00
	Split	Pumphouse Discharge Station 27	7672	12/15/88 (a)	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	<3. E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 2.2 E 02 ± 2.0 E 02 1.3 E 01 ± 0.2 E 01	* 1.35 E+02 ± 3.16 E+01 * -1.52 E-01 ± 2.12 E+00 * 1.89 E-01 ± 4.45 E+00 * -2.14 E+00 ± 2.24 E+00 * 6.69 E-01 ± 2.29 E+00 * 1.35 E+00 ± 4.54 E+00 * 1.90 E+00 ± 4.65 E+00 * 0.00 E+00 ± 2.34 E+00 * 3.97 E+00 ± 2.62 E+00 * -2.95 E+00 ± 8.59 E+00 4.7 E+02 ± 1.20 E+02 2.3 E+01 ± 3.0 E+00

* Denotes a result less than the detection limit

(a) Sampler nonfunctional; grab samples taken and/or attempted during a portion of this period.

State of Washington
 Department of Health
 Division of Radiation Protection

Description of Services Rendered

Location of Facility:
 WNP-2 Hanford Reservation

Reporting Period:
 January-March 1988
 1st Quarter

No. Samples	Sample Type	Analyses Performed			No. Analyses
		Gross Beta	Gamma	Tritium I-131	
	Air Particulate	26	2	0	28
	Radioiodine	0	0	0	26
	TLDs	0	0	0	0
	Water	6	6	6	18
	Sediment	0	0	0	0
	Milk	0	3	0	3
	Food Products	0	0	0	0
	Fish	0	0	0	0

State of Washington
 Department of Health
 Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
 1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Ingestion: Milk	Split	Station 36	6843	01/05/88	K-40	1.24 E 03 ± 0.05 E 03	No data
					I-131	<1. E 00	* -1.6 E-01 ± 2.06 E-01
					Cs-134	<4. E 00	* -7.15 E-02 ± 2.39 E+00
					Cs-137	<4. E 00	* -4.40 E-01 ± 2.27 E+00
					Ba-140	<7. E 00	* -1.86 E+00 ± 7.72 E+00
	"	" "	6936	02/09/88	K-40	1.25 E 03 ± 0.50 E 03	No data
					I-131	<7. E-01	* -7.9 E-02 ± 1.38 E-01
					Cs-134	<4. E 00	* 1.54 E+00 ± 2.35 E+00
					Cs-137	<4. E 00	* 6.41 E-01 ± 2.35 E+00
					Ba-140	<7. E 00	* -5.06 E+00 ± 8.79 E+00
	"	" "	6992	03/08/88	K-40	1.37 E 03 ± 0.04 E 03	No data
					I-131	<7. E-01	* -1.8 E-02 ± 1.21 E-01
					Cs-134	<3. E 00	* -1.10 E+00 ± 2.25 E+00
					Cs-137	<3. E 00	* 8.97 E-01 ± 2.23 E+00
					Ba-140	<9. E 00	* -1.13 E+00 ± 7.13 E+00

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)		Licensee
Waterborne: Surface	Split	Pumphouse Intake Station 26	6887	01/13/88	K-40	3.5	E 01 ± 0.8 E 01	* 8.52 E+01 ± 2.42 E+01
					Mn-54	<3.	E 00	* -6.66 E-02 ± 1.69 E+00
					Fe-59	<6.	E 00	* -9.24 E-01 ± 3.31 E+00
					Co-58	<2.	E 00	* -5.31 E-01 ± 1.85 E+00
					Co-60	<3.	E 00	* -3.98 E-01 ± 2.14 E+00
					Zn-65	<5.	E 00	* -2.20 E+00 ± 3.82 E+00
					Zr-95	<5.	E 00	* -1.70 E+00 ± 3.48 E+00
					Cs-134	<3.	E 00	* -8.69 E-01 ± 1.83 E+00
					Cs-137	<3.	E 00	* -6.40 E-02 ± 2.00 E+00
					Ba-140	<2.	E 01	* 3.04 E+00 ± 5.53 E+00
					H-3	3.5	E 02 ± 2.0 E 02	quarterly composite
					Gross Beta	1.6	E 00 ± 0.6 E 00	1.6 E+00 ± 7.0 E-01
	Split	Pumphouse Intake Station 26	6940	02/16/88	K-40	<3.	E 01	* 6.17 E+02 ± 4.08 E+01
					Mn-54	<3.	E 00	* 3.89 E-01 ± 2.22 E+00
					Fe-59	<7.	E 00	* 2.87 E+00 ± 4.58 E+00
					Co-58	<3.	E 00	* 9.32 E-01 ± 2.21 E+00
					Co-60	<4.	E 00	* 3.68 E+00 ± 2.36 E+00
					Zn-65	<7.	E 00	* -4.86 E+00 ± 5.27 E+00
					Zr-95	<7.	E 00	* -1.32 E-01 ± 4.55 E-01
					Cs-134	<4.	E 00	* 2.15 E+00 ± 2.54 E+00
					Cs-137	<4.	E 00	* 3.25 E+00 ± 2.53 E+00
					Ba-140	<2.	E 01	* -8.69 E-01 ± 7.55 E+00
					H-3	-9.2	E 01 ± 19.3 E 01	quarterly composite
					Gross Beta	1.6	E 00 ± 0.6 E 00	2.0 E+00 ± 7.0 E-01

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Intake Station 26	7005	03/16/88	K-40	3.1 E 01 ± 1.7 E 01	* 9.03 E+02 ± 5.99 E+01
					Mn-54	<3. E 00	* 4.74 E-01 ± 2.59 E+00
					Fe-59	<7. E 00	* 2.19 E+00 ± 5.65 E+00
					Co-58	<3. E 00	* 6.14 E-02 ± 2.70 E+00
					Co-60	<4. E 00	* 1.48 E+00 ± 2.61 E+00
					Zn-65	<7. E 00	* -5.12 E+00 ± 6.15 E+00
					Zr-95	<7. E 00	* 3.17 E+00 ± 5.37 E+00
					Cs-134	<4. E 00	* 6.41 E-01 ± 2.78 E+00
					Cs-137	<4. E 00	* 3.90 E+00 ± 2.89 E+00
					Ba-140	<2. E 01	* 4.75 E+00 ± 9.74 E+00
					H-3	0.5 E 02 ± 2.0 E 02	* 6.0 E+01 ± 7.08 E+01
					Gross Beta	1.5 E 00 ± 0.4 E 00	1.7 E+00 ± 7.0 E-01
	Split	Pumphouse Discharge Station 27	6888	01/13/88	K-40	3.7 E 01 ± 0.7 E 01	* 9.72 E+02 ± 6.22 E+01
					Mn-54	<2. E 00	* -1.72 E+00 ± 2.48 E+00
					Fe-59	<6. E 00	* 2.32 E+00 ± 5.04 E+00
					Co-58	<3. E 00	* -2.54 E+00 ± 2.40 E+00
					Co-60	<3. E 00	* 2.20 E+00 ± 2.80 E+00
					Zn-65	<6. E 00	* -6.00 E-01 ± 6.21 E+00
					Zr-95	<5. E 00	* 5.75 E+00 ± 5.23 E+00
					Cs-134	<3. E 00	* 9.03 E-01 ± 2.75 E+00
					Cs-137	<3. E 00	* 1.09 E+00 ± 2.81 E+00
					Ba-140	<2. E 01	* 3.89 E-01 ± 7.24 E+00
					H-3	3.7 E 02 ± 2.0 E 02	quarterly composite
					Gross Beta	2.5 E 01 ± 0.2 E 01	3.3 E+01 ± 3.0 E+00

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Discharge Station 27	6941	02/16/88	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	<3. E 01 <3. E 00 <7. E 00 <3. E 00 <4. E 00 <7. E 00 <7. E 00 <4. E 00 <4. E 00 <3. E 01 7.5 E 01 ± 19.6 E 01 2.4 E 01 ± 0.2 E 01	* 1.04 E+02 ± 2.42 E+01 * 2.11 E+00 ± 1.68 E+00 * -2.49 E+00 ± 3.35 E+00 * -5.70 E-01 ± 1.66 E+00 * 9.25 E-01 ± 1.94 E+00 * 4.83 E-01 ± 3.85 E+00 * 3.22 E+00 ± 3.38 E+00 * -5.08 E-02 ± 1.82 E+00 * 1.24 E+00 ± 1.86 E+00 * 3.40 E-01 ± 5.41 E+00 quarterly composite 3.0 E+01 ± 3.0 E+00
	Split	Pumphouse Discharge Station 27	7006	03/16/88 (a)	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	<4. E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 1.46 E 03 ± 0.22 E 03 1.2 E 01 ± 0.1 E 01	* 1.32 E+02 ± 2.88 E+01 * -2.59 E-01 ± 1.68 E+00 * 1.13 E+00 ± 3.83 E+00 * -2.68 E-01 ± 1.74 E+00 * 1.84 E+00 ± 2.06 E+00 * -1.66 E-01 ± 4.15 E+00 * 2.34 E+00 ± 3.57 E+00 * 1.82 E+00 ± 1.97 E+00 * 1.41 E+00 ± 1.96 E+00 * 2.91 E+00 ± 6.85 E+00 4.7 E+02 ± 1.30 E+02 1.4 E+01 ± 2.0 E+00

* Denotes a result less than the detection limit
(a) Sampler nonfunctional during a portion of this time.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station #4	6840	01/04/88	Gr. Beta I-131	7.7 E-02 ± 0.2 E-02 <1. E-02	8.3 E-02 ± 5.0 E-03 * 7.09 E-03 ± 1.08 E-02
	" "		6885	01/11/88	Gr. Beta I-131	7.1 E-02 ± 0.2 E-02 <1. E-02	8.4 E-02 ± 5.0 E-03 * -5.00 E-03 ± 1.41 E-02
	" "		6892	01/18/88	Gr. Beta I-131	9. E-03 ± 1. E-03 <1. E-02	6.2 E-03 ± 1.8 E-03 * -1.60 E-03 ± 5.82 E-03
	" "		6917	01/25/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <1. E-02	1.2 E-02 ± 2.0 E-03 * -3.14 E-03 ± 9.20 E-03
	" "		6924	02/01/88	Gr. Beta I-131	2.7 E-02 ± 0.1 E-02 <1. E-02	3.4 E-02 ± 3.0 E-03 * 4.33 E-04 ± 8.39 E-03
	" "		6933	02/08/88	Gr. Beta I-131	3.2 E-02 ± 0.1 E-02 <1. E-02	4.9 E-02 ± 4.0 E-03 * -5.55 E-03 ± 1.11 E-02
	" "		6943	02/16/88	Gr. Beta I-131	5. E-03 ± 1. E-03 <1. E-02	7.6 E-03 ± 1.9 E-03 * -2.98 E-03 ± 7.27 E-03
	" "		6952	02/22/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <1. E-02	1.2 E-02 ± 2.0 E-03 * 0.00 E-01 ± 1.13 E-02
	" "		6979	02/29/88	Gr. Beta I-131	4.0 E-02 ± 0.1 E-02 <1. E-02	5.3 E-02 ± 4.0 E-03 * 1.15 E-04 ± 8.89 E-03
	" "		6989	03/07/88	Gr. Beta I-131	1.3 E-02 ± 0.1 E-02 <1. E-02	1.7 E-02 ± 2.0 E-03 * 7.83 E-03 ± 9.67 E-03
	" "		7001	03/14/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <2. E-02	8.9 E-03 ± 2.0 E-03 * 7.50 E-04 ± 9.64 E-03
	" "		7010	03/21/88	Gr. Beta I-131	1.6 E-02 ± 0.1 E-02 <1. E-02	1.9 E-02 ± 2.0 E-03 * -6.70 E-03 ± 1.19 E-02

*Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/m ³ ± Error)			Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station #4	7016	03/28/88	Gr. Beta I-131	4. E-03 ± 1. E-03 <1. E-02			4.7 E-03 ± 1.8 E-03 * 1.90 E-03 ± 8.75 E-03
	" "	" "	7105	Quarterly particulate composite	Be-7 Cs-134 Cs-137	6.1 E-02 ± 1.4 E-02 <2. E-03 <1. E-03			7.72 E-02 ± 4.80 E-03 * 0.00 E-01 ± 1.69 E-04 * 1.20 E-04 ± 1.54 E-04
	Duplicate	Station #8	6841	01/04/88	Gr. Beta I-131	6.8 E-02 ± 0.2 E-02 <2. E-02			6.8 E-02 ± 4.0 E-03 * -8.21 E-03 ± 8.90 E-03
	" "	" "	6886	01/11/88	Gr. Beta I-131	6.3 E-02 ± 0.2 E-02 <1. E-02			7.2 E-02 ± 4.0 E-03 * -2.24 E-03 ± 1.14 E-02
	" "	" "	6893	01/18/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <1. E-02			5.8 E-03 ± 1.8 E-03 * -9.98 E-03 ± 9.33 E-03
	" "	" "	6918	01/25/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <1. E-02			1.0 E-02 ± 2.0 E-03 * -8.26 E-03 ± 1.16 E-02
	" "	" "	6925	02/01/88	Gr. Beta I-131	2.7 E-02 ± 0.1 E-02 <1 E-02			2.7 E-02 ± 3.0 E-03 * 5.72 E-04 ± 1.20 E-02
	" "	" "	6934	02/08/88	Gr. Beta I-131	3.3 E-02 ± 0.1 E-02 <2. E-02			3.8 E-02 ± 3.0 E-03 * 1.11 E-03 ± 9.34 E-03
	" "	" "	6944	02/16/88	Gr. Beta I-131	6. E-03 ± 1. E-03 <1. E-02			6.8 E-03 ± 1.9 E-03 * 3.46 E-03 ± 6.75 E-03
	" "	" "	6953	02/22/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <1. E-02			7.1 E-03 ± 2.2 E-03 * -3.26 E-03 ± 1.02 E-02
" "	" "	6980	02/29/88	Gr. Beta I-131	3.7 E-02 ± 0.1 E-02 <1. E-02			4.1 E-02 ± 3.0 E-03 * 5.17 E-03 ± 8.36 E-03	

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: January-March 1988
1st Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station 8	6990	03/07/88	Gr. Beta I-131	1.4 E-02 ± 0.1 E-02 <1. E-02	1.3 E-02 ± 2.0 E-03 * 2.15 E-03 ± 8.59 E-03
	" "		7002	03/14/88	Gr. Beta I-131	9. E-03 ± 1. E-03 <2. E-02	9.4 E-03 ± 2.0 E-03 * 1.72 E-03 ± 9.21 E-03
	" "		7011	03/21/88	Gr. Beta I-131	1.8 E-02 ± 0.1 E-02 <1. E-02	1.7 E-02 ± 2.0 E-03 * -1.06 E-03 ± 9.69 E-03
	" "		7017	03/28/88	Gr. Beta I-131	4. E-03 ± 1. E-03 <1. E-02	3.8 E-03 ± 1.7 E-03 * 4.46 E-03 ± 1.19 E-02
	Duplicate	Station 8	7106	Quarterly particulate composite	Be-7 Cs-134 Cs-137	6.77 E-02 ± 1.68 E-02 <1. E-03 <1. E-03	6.31 E-02 ± 4.63 E-03 * 1.10 E-05 ± 1.73 E-04 * 6.45 E-05 ± 1.90 E-04

* Denotes a result less than the detection limit.

State of Washington
 Department of Health
 Division of Radiation Protection

Description of Services Rendered

Location of Facility:
 WNP-2 Hanford Reservation

Reporting Period:
 April-June 1988
 2nd Quarter

No. Samples	Analyses Performed				No. Analyses
	Sample Type	Gross Beta	Gamma	Tritium I-131	
	Air Particulate	26	2	0	28
	Radioiodine	0	0	0	26
	TLDs	0	0	0	0
	Water	5	5	5	15
	Sediment	3	3	0	6
	Milk	0	3	0	3
	Food Products	0	1	0	1
	Fish	0	1	0	1

State of Washington
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Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: April-June 1988
 2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/kg ± Error)	Licensee
Fish: (Carp)	Split	Columbia River (Sta. #30)	7088	04/27/88		(wet)	
					K-40	2.56 E 03 ± 0.20 E 03	2.78 E+03 ± 1.20 E+02
					Mn-54	<1.1 E 01	* 1.75 E+00 ± 2.76 E+00
					Fe-59	<2.3 E 01	* -4.25 E-01 ± 7.93 E+00
					Co-58	<1.0 E 01	* -2.58 E-01 ± 2.84 E+00
					Co-60	<1.2 E 01	* 3.37 E+00 ± 3.26 E+00
					Zn-65	<2.4 E 01	* -6.71 E+00 ± 7.38 E+00
					Cs-134	<1.1 E 01	* 2.13 E+00 ± 2.99 E+00
Cs-137	1.1 E 01 ± 0.7 E 01	1.26 E+01 ± 4.13 E+00					

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: April-June 1988
2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee			
Waterborne: Surface	Split	Pumphouse Intake Station 26	7061	04/13/88	K-40	<3. E 01	* 1.88 E-01 ± 9.01 E+00			
					Mn-54	<2. E 00	* 5.33 E-01 ± 7.28 E-01			
Fe-59					<5. E 00	* 8.64 E-01 ± 3.30 E+00				
Co-58					<2. E 00	* 3.05 E-01 ± 1.19 E+00				
Co-60					<3. E 00	* -3.05 E-01 ± 7.40 E-01				
Zn-65					<5. E 00	* 7.46 E-02 ± 1.83 E+00				
Zr-95					<5. E 00	* -7.58 E-01 ± 2.30 E+00				
Cs-134					<3. E 00	* -5.61 E-02 ± 7.79 E-01				
Cs-137					<3. E 00	* 4.90 E-01 ± 7.32 E-01				
Ba-140					<2. E 01	* -4.04 E-01 ± 5.09 E+01				
H-3					1.5 E 02 ± 2.0 E 02	quarterly composite				
Gross Beta					9. E-01 ± 5. E-01	4.7 E+00 ± 9.0 E-01				
Split					Pumphouse Intake Station 26	7121	05/18/88 (a)	K-40	<3. E 01	* 8.50 E+01 ± 2.29 E+01
								Mn-54	<2. E 00	* 1.09 E+00 ± 1.61 E+00
	Fe-59	<5. E 00	* 1.49 E+00 ± 3.27 E+00							
	Co-58	<2. E 00	* -4.93 E-02 ± 1.51 E+00							
	Co-60	<3. E 00	* 1.70 E+00 ± 1.69 E+00							
	Zn-65	<5. E 00	* -2.89 E+00 ± 3.70 E+00							
	Zr-95	<5. E 00	* -1.72 E+00 ± 3.10 E+00							
	Cs-134	<3. E 00	* 0.00 E+00 ± 1.78 E+00							
	Cs-137	<3. E 00	* 2.52 E+00 ± 1.83 E+00							
	Ba-140	<2. E 01	* 1.20 E+00 ± 4.60 E+00							
	H-3	<3. E 02	quarterly composite							
	Gross Beta	1.6 E 00 ± 0.5 E 00	2.5 E+00 ± 8.0 E-01							

* Denotes a result less than the detection limit
(a) Sampler nonfunctional from 5/09/88 to 5/12/88

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNF-2 - Hanford Reservation

Reporting Period: April-June 1988
2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Intake Station 26	7183	06/15/88	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	<3. E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 0.4 E 02 ± 2. E 02 1.1 E 00 ± 0.9 E 00	* 4.36 E+02 ± 3.87 E+01 * -5.86 E-01 ± 2.22 E+00 * -1.16 E+00 ± 5.30 E+00 * 3.54 E-01 ± 2.47 E+00 * 3.13 E+00 ± 2.33 E+00 * 6.13 E+00 ± 5.05 E+00 * 5.38 E+00 ± 5.15 E+00 * 3.84 E-01 ± 2.40 E+00 * 1.80 E+00 ± 2.50 E+00 * 5.66 E+00 ± 1.53 E+01 2.8 E+02 ± 7.00 E+01 2.0 E+00 ± 8.0 E-01
	Split	Pumphouse Discharge Station 27	7062	04/13/88 (a)	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	4.1 E 01 ± 0.6 E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 1.3 E 02 ± 2.0 E 02 1.4 E 01 ± 0.3 E 01	* 6.57 E+01 ± 2.66 E+01 * 1.22 E+00 ± 1.68 E+00 * -1.80 E-01 ± 3.63 E+00 * 1.48 E+00 ± 1.78 E+00 * 1.96 E+00 ± 2.22 E+00 * 4.28 E+00 ± 4.01 E+00 * 8.14 E-01 ± 3.88 E+00 * 0.00 E+00 ± 1.92 E+00 * 4.71 E-01 ± 1.94 E+00 * -3.96 E-01 ± 6.55 E+00 quarterly composite 2.7 E+01 ± 3.0 E+00

* Denotes a result less than the detection limit
(a) Sampler not operational during part of this period.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: April-June 1988
2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/L ± Error)	Licensee				
Waterborne: Surface	Split	Pumphouse Discharge Station 27	7184	06/15/88 (a)	K-40	4.4 E 01 ± 0.5 E 01	* 7.19 E-01 ± 2.40 E+01				
					Mn-54	<2. E 00	* 1.54 E+00 ± 1.78 E+00				
					Fe-59	<4. E 00	* 1.24 E+00 ± 4.61 E+00				
					Co-58	<2. E 00	* -1.38 E-01 ± 1.88 E+00				
					Co-60	<2. E 00	* 0.00 E+00 ± 1.90 E+00				
					Zn-65	<3. E 00	* 1.75 E+00 ± 4.30 E+00				
					Zr-95	<3. E 00	* -1.28 E+00 ± 4.03 E+00				
					Cs-134	<2. E 00	* 1.64 E+00 ± 1.91 E+00				
					Cs-137	<2. E 00	* -9.64 E-01 ± 1.92 E+00				
					Ba-140	<2. E 01	* -9.15 E-01 ± 1.16 E+01				
					H-3	0.5 E 02 ± 2.0 E 02	9.9 E+02 ± 1.30 E+02				
					Gross Beta	3. E 00 ± 1. E 00	3.8 E+00 ± 1.0 E+00				
					pCi/kg (dry)						
					Sediment	Split	Station 34 (down-stream)		04/21/88	K-40	1.54 E 04 ± 0.3 E 03
Mn-54	<1.0 E 01	No data									
Co-60	7.0 E 01 ± 1.0 E 01	5.51 E+01 ± 2.07 E+01									
Cs-134	1.5 E 01 ± 0.7 E 01	7.16 E+01 ± 1.56 E+01									
Cs-137	29 E 01 ± 1.0 E 01	2.88 E+02 ± 2.19 E+01									
Gross Beta	240 E 02 ± 20 E 02	No data									

No discharge was collected for May 1988 due to an outage.

* Denotes a result less than the detection limit

(a) Sampler not operational during part of this period.

State of Washington
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Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: April-June 1988
2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/m ³ ± Error)		Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station #4	7047	04/04/88	Gr. Beta I-131	5. E-03 ± 1. E-03 <1.2 E-02		5.1 E-03 ± 2.0 E-03 * -3.31 E-03 ± 1.16 E-02
	" "		7053	04/11/88	Gr. Beta I-131	3.2 E-02 ± 0.1 E-02 <1.3 E-02		9.5 E-03 ± 1.9 E-03 * -5.52 E-04 ± 1.07 E-02
	" "		7067	04/18/88	Gr. Beta I-131	2.0 E-02 ± 0.1 E-02 <1.6 E-02		1.6 E-02 ± 3.0 E-03 * -4.83 E-03 ± 8.12 E-03
	" "		7071	04/25/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <1.2 E-02		6.5 E-03 ± 1.9 E-03 * -8.32 E-03 ± 9.49 E-03
	" "		7086	05/02/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <1. E-02		9.0 E-03 ± 2.2 E-03 * -1.59 E-03 ± 9.13 E-03
	" "		7112	05/09/88	Gr. Beta I-131	1.5 E-02 ± 0.1 E-02 <1. E-02		8.9 E-03 ± 2.1 E-03 * -8.83 E-04 ± 1.17 E-02
	" "		7117	05/16/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <1. E-02		1.2 E-02 ± 2.0 E-03 * -3.15 E-03 ± 1.15 E-02
	" "		7126	05/23/88	Gr. Beta I-131	1.1 E-02 ± 0.1 E-02 <1. E-02		1.2 E-02 ± 2.0 E-03 * 1.48 E-03 ± 1.13 E-02
	" "		7156	05/31/88	Gr. Beta I-131	7. E-03 ± 1. E-03 <1.3 E-02		7.8 E-03 ± 2.0 E-03 * 2.38 E-03 ± 8.63 E-03
	" "		7164	06/06/88	Gr. Beta I-131	6. E-03 ± 1. E-03 <1.4 E-02		5.5 E-03 ± 2.1 E-03 * 4.26 E-03 ± 1.22 E-02
	" "		7181	06/13/88	Gr. Beta I-131	9. E-03 ± 1. E-03 <1. E-02		8.5 E-03 ± 2.1 E-03 * -7.45 E-03 ± 1.17 E-02
	" "		7195	06/20/88	Gr. Beta I-131	1.4 E-02 ± 0.1 E-02 <1. E-02		1.8 E-02 ± 3.0 E-03 * 2.89 E-03 ± 1.04 E-02

*Denotes a result less than the detection limit.

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Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: April-June 1988
2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station #4	7219	06/27/88	Gr. Beta I-131	2.0 E-02 ± 0.3 E-02 <1.4 E-02	1.6 E-02 ± 2.0 E-03 * -2.23 E-04 ± 1.03 E-02
	" "	" "	7355	Quarterly particulate composite	Be-7	1.3 E-02 ± 0.4 E-02	7.70 E-02 ± 5.51 E-03
					Cs-134	<1. E-03	* 2.72 E-05 ± 1.54 E-04
					Cs-137	<1. E-03	* 7.51 E-06 ± 1.48 E-04
	Duplicate	Station #8	7048	04/04/88	Gr. Beta I-131	5. E-03 ± 1. E-03 <1.6 E-02	3.7 E-03 ± 1.9 E-03 * 6.29 E-03 ± 9.46 E-03
	" "		7054	04/11/88	Gr. Beta I-131	3.2 E-02 ± 1. E-03 <1.4 E-02	8.6 E-03 ± 1.9 E-03 * 1.45 E-03 ± 8.62 E-03
	" "		7068	04/18/88	Gr. Beta I-131	2.1 E-02 ± 0.1 E-02 <1.5 E-02	1.3 E-02 ± 3.0 E-03 * 6.18 E-03 ± 1.23 E-02
	" "		7072	04/25/88	Gr. Beta I-131	9. E-03 ± 1. E-03 <1.5 E-02	5.1 E-03 ± 1.8 E-03 * -2.65 E-03 ± 8.15 E-03
	" "		7087	05/02/88	Gr. Beta I-131	1.1 E-02 ± 0.1 E-02 <1. E-02	6.7 E-03 ± 2.1 E-03 * -1.55 E-03 ± 8.30 E-03
	" "		7113	05/09/88	Gr. Beta I-131	1.6 E-02 ± 0.1 E-02 <1. E-02	8.3 E-03 ± 2.1 E-03 * 8.01 E-04 ± 9.41 E-03
" "		7118	05/16/88	Gr. Beta I-131	1.4 E-02 ± 0.1 E-02 <1. E-02	8.1 E-03 ± 2.1 E-03 * 3.44 E-03 ± 9.43 E-03	
" "		7127	05/23/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <1. E-02	1.1 E-02 ± 2.0 E-03 * -2.17 E-03 ± 8.78 E-03	
" "		7157	05/31/88	Gr. Beta I-131	8. E-03 ± 1. E-03 <1.3 E-02	8.5 E-03 ± 2.0 E-03 * -2.97 E-03 ± 7.12 E-03	

* Denotes a result less than the detection limit.

State of Washington
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Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: April-June 1988
2nd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station 8	7165	06/06/88	Gr. Beta I-131	7. E-03 ± 1. E-03 <1.8 E-02	6.6 E-03 ± 2.2 E-03 * 5.74 E-04 ± 1.04 E-02
	" "		7182	06/13/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <1. E-02	8.5 E-03 ± 2.1 E-03 * -3.92 E-04 ± 9.77 E-03
	" "		7196	06/20/88	Gr. Beta I-131	1.6 E-02 ± 0.1 E-02 <2. E-02	1.2 E-02 ± 2.0 E-03 * 1.21 E-03 ± 8.79 E-03
	" "		7220	06/27/88	Gr. Beta I-131	1.7 E-02 ± 0.2 E-02 <1.4 E-02	1.5 E-02 ± 2.0 E-03 * 4.48 E-03 ± 9.03 E-03
	Duplicate	Station 8	7356	Quarterly particulate composite	Be-7 Cs-134 Cs-137	1.7 E-01 ± 0.4 E-01 <1. E-03 <1. E-03	6.27 E-02 ± 5.04 E-03 * 4.00 E-05 ± 1.72 E-04 * 8.27 E-05 ± 1.69 E-04

* Denotes a result less than the detection limit.

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Description of Services Rendered

Location of Facility:
WNP-2-Hanford Reservation

Reporting Period:
July-September 1988
3rd Quarter

No. Samples	Sample Type	<u>Analyses Performed</u>				No. Analyses
		Gross Beta	Gamma	Tritium	I-131	
	Air Particulate	26	2	0	0	28
	Radioiodine	0	0	0	26	26
	TLDS	0	0	0	0	0
	Water	6	6	6	0	18
	Sediment	0	0	0	0	0
	Milk	0	3	0	3	6
	Food Products	0	1	0	0	1
	Fish	0	0	0	0	0

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Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: July-September 1988
3rd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Intake Station 26	7285	07/01/88	K-40	<3.6 E 01	(a)
					Mn-54	<2. E 00	(a)
Fe-59					<5. E 00	(a)	
Co-58					<2. E 00	(a)	
Co-60					<3. E 00	(a)	
Zn-65					<7. E 00	(a)	
Zr-95					<5. E 00	(a)	
Cs-134					<4. E 00	(a)	
Cs-137					<4. E 00	(a)	
Ba-140					<1.7 E 01	(a)	
H-3					1.4 E 02 ± 2.1 E 02	(a)	
Gross Beta					8.2 E-01 ± 7.0 E-01	(a)	
	Split	Pumphouse Intake Station 26	7288	07/20/88 (b)	K-40	<3.0 E 01	* 9.26 E+01 ± 2.86 E+01
Mn-54					<2. E 00	* 5.93 E-01 ± 1.93 E+00	
Fe-59					<5. E 00	* -1.59 E+00 ± 3.96 E+00	
Co-58					<2. E 00	* -4.42 E-01 ± 1.99 E+00	
Co-60					<2. E 00	* 2.16 E-01 ± 2.26 E+00	
Zn-65					<4. E 00	* -2.95 E+00 ± 4.22 E+00	
Zr-95					<4. E 00	* -0.00 E+00 ± 3.93 E+00	
Cs-134					<2. E 00	* 1.40 E+00 ± 2.16 E+00	
Cs-137					<2. E 00	* 1.22 E+00 ± 2.26 E+00	
Ba-140					<2. E 01	* 1.33 E+00 ± 7.27 E+00	
H-3					1.4 E 02 ± 2.1 E 02	quarterly composite	
Gross Beta					8. E-01 ± 7. E-01	2.5 E+00 ± 8.0 E-01	

* Denotes a result less than the detection limit

(a) No data available

(b) Sampler not operational during part of this period; grab samples taken during a portion of this time.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: July-September 1988
3rd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/L ± Error)	Licensee				
Waterborne: Surface	Split	Pumphouse Intake Station 26	7338	08/17/88	K-40	<3.0 E 01	* 1.05 E+02 ± 2.64 E+01				
					Mn-54	<2. E 00	* 1.05 E+00 ± 1.78 E+00				
Fe-59					<5. E 00	* 2.86 E+00 ± 3.92 E+00					
Co-58					<2. E 00	* 1.07 E+00 ± 1.81 E+00					
Co-60					<2. E 00	* 0.00 E+00 ± 1.98 E+00					
Zn-65					<4. E 00	* -8.43 E-01 ± 4.18 E+00					
Zr-95					<5. E 00	* 1.46 E+00 ± 3.63 E+00					
Cs-134					<3. E 00	* 4.95 E-01 ± 1.94 E+00					
Cs-137					<3. E 00	* -1.24 E-01 ± 1.93 E+00					
Ba-140					<1. E 01	* -1.47 E+00 ± 6.10 E+00					
H-3					2. E 01 ± 19. E 01	quarterly composite					
Gross Beta					1.0 E 00 ± 0.7 E 00	2.1 E+00 ± 7.0 E-01					
Waterborne: Surface					Split	Pumphouse Intake Station 26	7398	09/15/88 (a)	K-40	<3.0 E 01	* 1.02 E+02 ± 2.28 E+01
									Mn-54	<2. E 00	* -2.84 E-01 ± 1.68 E+00
	Fe-59	<5. E 00	* 3.74 E-01 ± 3.76 E+00								
	Co-58	<2. E 00	* 1.26 E+00 ± 1.88 E+00								
	Co-60	<3. E 00	* 1.07 E+00 ± 1.96 E+00								
	Zn-65	<5. E 00	* -1.84 E+00 ± 4.08 E+00								
	Zr-95	<5. E 00	* -5.55 E-01 ± 3.63 E+00								
	Cs-134	<3. E 00	* 2.53 E-01 ± 1.79 E+00								
	Cs-137	<3. E 00	* 3.17 E+00 ± 2.01 E+00								
	Ba-140	<1.7 E 01	* -1.45 E+00 ± 7.90 E+00								
	H-3	2.6 E 02 ± 2.0 E 02	* 1.8 E+02 ± 1.50 E+02								
	Gross Beta	1.4 E 00 ± 0.7 E 00	2.4 E+00 ± 9.0 E-01								

* Denotes a result less than the detection limit

(a) Sampler not operational during part of this period; grab samples taken during a portion of this time.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: July-September 1988
3rd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Discharge Station 27	7286	07/20/88	K-40	<3. E 01	* 1.85 E+03 ± 9.45 E+01
					Mn-54	<2. E 00	* -4.90 E-01 ± 3.75 E+00
Fe-59					<5. E 00	* -2.82 E+00 ± 8.07 E+00	
Co-58					<5. E 00	* 1.81 E+00 ± 3.89 E+00	
Co-60					<3. E 00	* 7.18 E+00 ± 4.07 E+00	
Zn-65					1.9 E 01 ± 0.4 E 01	* 6.00 E+00 ± 9.62 E+00	
Zr-95					<5. E 00	* 1.45 E+00 ± 7.56 E+00	
Cs-134					2.1 E 00 ± .5 E 00	* 5.35 E+00 ± 4.19 E+00	
Cs-137					2.6 E 00 ± 1.1 E 00	* 7.85 E+00 ± 4.42 E+00	
Ba-140					<2. E 01	* -5.95 E+00 ± 1.40 E+01	
H-3					3.81 E 03 ± 0.27 E 03	quarterly composite	
Gross Beta					1.1 E 01 ± 0.1 E 01	1.5 E+01 ± 2.0 E+00	
					Split	Pumphouse Discharge Station 27	7399
	Mn-54	<2. E 00	* 1.07 E+00 ± 1.89 E+00				
	Fe-59	<5. E 00	* -1.25 E+00 ± 4.16 E+00				
	Co-58	<5. E 00	* 1.14 E-01 ± 1.94 E+00				
	Co-60	<3. E 00	* -2.34 E-01 ± 1.97 E+00				
	Zn-65	<5. E 00	* 1.36 E+00 ± 3.90 E+00				
	Zr-95	<5. E 00	* 2.32 E+00 ± 7.12 E+00				
	Cs-134	<3. E 00	* -8.61 E-01 ± 1.95 E+00				
	Cs-137	<2. E 00	* 1.36 E+00 ± 2.07 E+00				
	Ba-140	<2. E 01	* 4.49 E+00 ± 8.72 E+00				
	H-3	4.88 E 03 ± 0.28 E 03	4.4 E+03 ± 1.00 E+02				
	Gross Beta	1.3 E 01 ± 0.2 E 01	1.9 E+01 ± 2.0 E+00				

No discharge sample was collected for August 1988 due to installation of a proportional sampling system.

* Denotes a result less than the detection limit.

(a) Sampler not operational during part of this period; grab samples taken and/or attempted during a portion of this period.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: July-September 1988
3rd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station 4	7248	07/05/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <1. E-02	8.7 E-03 ± 1.8 E-03 * 2.49 E-03 ± 9.72 E-03
			7274	07/11/88	Gr. Beta I-131	1.2 E-02 ± 0.2 E-02 <1. E-02	9.7 E-03 ± 2.4 E-03 * 4.32 E-04 ± 1.70 E-02
			7283	07/18/88	Gr. Beta I-131	9. E-03 ± 1. E-03 <2. E-02	8.1 E-03 ± 2.3 E-03 * 2.16 E-03 ± 1.10 E-02
			7295	07/25/88	Gr. Beta I-131	1.5 E-02 ± 0.2 E-02 <2. E-02	1.9 E-02 ± 2.0 E-03 * -6.55 E-03 ± 1.11 E-02
			7302	08/01/88	Gr. Beta I-131	1.6 E-02 ± 0.2 E-02 <2. E-02	1.8 E-02 ± 2.0 E-03 * 2.22 E-03 ± 9.35 E-03
			7314	08/08/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <2. E-02	1.2 E-02 ± 2.0 E-03 * -5.16 E-03 ± 1.53 E-02
			7333	08/15/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <1. E-02	1.1 E-02 ± 2.0 E-03 * -5.45 E-03 ± 1.20 E-02
			7351	08/22/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <2. E-02	1.7 E-02 ± 3.0 E-03 * 1.26 E-03 ± 9.91 E-03
			7370	08/29/88	Gr. Beta I-131	2.4 E-02 ± 0.2 E-02 <2. E-02	2.4 E-02 ± 3.0 E-03 * -4.19 E-03 ± 1.10 E-02
			7378	09/06/88	Gr. Beta I-131	2.6 E-02 ± 0.2 E-02 <2. E-02	3.3 E-02 ± 3.0 E-03 * -1.75 E-03 ± 7.87 E-03
			7394	09/12/88	Gr. Beta I-131	1.1 E-02 ± 0.2 E-02 <2. E-02	1.1 E-02 ± 3.0 E-03 * -6.83 E-04 ± 1.53 E-02
			7411	09/19/88	Gr. Beta I-131	1.5 E-02 ± 0.2 E-02 <2. E-02	1.9 E-02 ± 3.0 E-03 * 1.76 E-03 ± 1.20 E-02

* Denotes a result less than the detection limit.

State of Washington
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Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: July-September 1988
3rd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station #4	7420	09/26/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <2. E-02	1.1 E-02 ± 2.0 E-03 * 1.88 E-03 ± 1.18 E-02
	" "	" "	7666	Quarterly particulate composite	Be-7 Cs-134 Cs-137	2.0 E-01 ± 0.5 E-01 <2. E-03 <1. E-03	7.06 E-02 ± 2.47 E-03 * 7.69 E-05 ± 9.17 E-05 * 2.57 E-04 ± 9.90 E-05
	Duplicate	Station #8	7249	07/05/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <1. E-02	5.4 E-03 ± 1.7 E-03 * -3.66 E-03 ± 7.92 E-03
	" "		7275	07/11/88	Gr. Beta I-131	1.1 E-02 ± 0.2 E-02 <2. E-02	9.2 E-03 ± 2.4 E-03 * -3.59 E-04 ± 1.46 E-02
	" "		7284	07/18/88	Gr. Beta I-131	7. E-03 ± 1. E-03 <1. E-02	6.9 E-03 ± 2.3 E-03 * -4.70 E-03 ± 9.18 E-03
	" "		7296	07/25/88	Gr. Beta I-131	1.6 E-02 ± 0.2 E-02 <2. E-02	1.3 E-02 ± 2.0 E-03 * -1.51 E-03 ± 9.69 E-03
	" "		7303	08/01/88	Gr. Beta I-131	1.5 E-02 ± 0.2 E-02 <2. E-02	1.2 E-02 ± 4.0 E-03 * -2.16 E-03 ± 3.11 E-02
	" "		7315	08/08/88	Gr. Beta I-131	1.2 E-02 ± 0.1 E-02 <2. E-02	9.0 E-03 ± 2.0 E-03 * 1.28 E-03 ± 1.26 E-02
	" "		7334	08/15/88	Gr. Beta I-131	1.5 E-02 ± 0.2 E-02 <1. E-02	1.1 E-02 ± 2.0 E-03 * -3.38 E-03 ± 9.80 E-03
	" "		7352	08/22/88	Gr. Beta I-131	1.0 E-02 ± 0.1 E-02 <1. E-02	1.1 E-02 ± 2.0 E-03 * -5.24 E-03 ± 8.46 E-03
" "		7371	08/29/88	Gr. Beta I-131	2.1 E-02 ± 0.2 E-02 <2. E-02	1.9 E-02 ± 3.0 E-03 * -2.08 E-03 ± 9.61 E-03	

* Denotes a result less than the detection limit.

(a) Sampler malfunctioned from 7/25/88 to 7/28/88; low sampling time.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: July-September 1988
3rd Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/m ³ ± Error)	Licensee
Airborne: Radioiodine & Particulates	Duplicate	Station 8	7379	09/06/88	Gr. Beta I-131	2.5 E-02 ± 0.2 E-02 <2. E-02	2.3 E-02 ± 3.0 E-03 * 1.77 E-03 ± 6.75 E-03
	" "		7395	09/12/88	Gr. Beta I-131	1.0 E-02 ± 0.2 E-02 <2. E-02	7.7 E-03 ± 2.6 E-03 * -2.92 E-03 ± 1.26 E-02
	" "		7412	09/19/88	Gr. Beta I-131	1.6 E-02 ± 0.2 E-02 <2. E-02	1.6 E-02 ± 3.0 E-03 * -6.60 E-03 ± 8.84 E-03
	" "		7421	09/26/88	Gr. Beta I-131	9. E-03 ± 1. E-03 <2. E-02	1.1 E-02 ± 2.0 E-03 * 7.88 E-04 ± 9.37 E-03
	Duplicate	Station 8	7667	Quarterly particulate composite	Be-7 Cs-134 Cs-137	1.8 E-01 ± 0.4 E-01 <2. E-03 <1. E-03	6.08 E-02 ± 2.50 E-03 * 1.14 E-04 ± 1.19 E-04 * 1.39 E-04 ± 1.18 E-04

* Denotes a result less than the detection limit

State of Washington
Department of Health
Division of Radiation Protection

Description of Services Rendered

Location of Facility:
WNP-2-Hanford Reservation

Reporting Period:
October-December 1988
4th Quarter

No. Samples	Sample Type	<u>Analyses Performed</u>				No. Analyses
		Gross Beta	Gamma	Tritium	I-131	
	Air Particulate	26	2	0	0	28
	Radioiodine	0	0	0	26	26
	TLDs	0	0	0	0	0
	Water	6	6	6	0	18
	Sediment	0	0	0	0	0
	Milk	0	3	0	3	6
	Food Products	0	0	0	0	0
	Fish	0	1	0	0	1

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Ingestion: Milk	Split	Station 36	7461	10/13/88	K-40	1.45 E 03 ± 0.05 E 03	No data
					I-131	<1. E 00	* 3.6 E-02 ± 1.55 E-01
					Cs-134	<3. E 00	* 1.08 E+00 ± 2.56 E+00
					Cs-137	<3. E 00	* 1.65 E+00 ± 2.48 E+00
	Ba-140	<7. E 00	* 2.22 E+00 ± 8.37 E+00				
	"	" "	4933	11/15/88	K-40	1.36 E 03 ± 0.05 E 03	No data
					I-131	<1. E 00	* 0.0 E+00 ± 1.47 E-01
					Cs-134	<3. E 00	* 2.59 E+00 ± 2.89 E+00
					Cs-137	<3. E 00	* 4.25 E+00 ± 2.72 E+00
	Ba-140	<8. E 00	* 3.02 E+00 ± 9.14 E+00				
	"	" "	7657	12/13/88	K-40	1.11 E 03 ± 0.06 E 03	No data
					I-131	<1. E 00	* 6.9 E-02 ± 1.21 E-01
Cs-134					<3. E 00	* -1.71 E+00 ± 2.63 E+00	
Cs-137					<3. E 00	* 1.58 E+00 ± 2.68 E+00	
Ba-140	<7. E 00	* 4.02 E+00 ± 9.57 E+00					
Fish: (White Fish)	Split	Columbia River Site #30	7443	10/11/88	pCi/kg (wet)		
					K-40	3.30 E 03 ± 0.23 E 03	3.24 E+03 ± 1.70 E+02
					Mn-54	<1. E 01	* 2.55 E+00 ± 4.88 E+00
					Fe-59	<2. E 01	* 5.75 E+00 ± 1.50 E+01
					Co-58	<1. E 01	* 1.28 E-01 ± 5.49 E+00
					Co-60	<1. E 01	* 6.54 E+00 ± 5.59 E+00
					Zn-65	<3. E 01	* -1.77 E+01 ± 1.34 E+01
					Cs-134	<1. E 01	* -1.17 E+00 ± 5.26 E+00
					Cs-137	1.4 E 01 ± 0.8 E 01	2.11 E+01 ± 7.67 E+00

* Denotes a result less than the detection limit.

State of Washington
Department of Health
Division of Radiation Protection

Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/ Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Intake Station 26	7452	10/12/88	K-40	<3. E 01	* 9.75 E+02 ± 6.53 E+01
					Mn-54	<2. E 00	* 1.78 E+00 ± 2.79 E+00
Fe-59					<5. E 00	* 1.16 E+00 ± 6.35 E+00	
Co-58					<2. E 00	* 2.75 E-01 ± 2.83 E+00	
Co-60					<3. E 00	* 1.66 E+00 ± 3.10 E+00	
Zn-65					<5. E 00	* -5.05 E+00 ± 6.70 E+00	
Zr-95					<5. E 00	* 2.16 E+00 ± 5.83 E+00	
Cs-134					<3. E 00	* -1.28 E+00 ± 3.08 E+00	
Cs-137					<3. E 00	* 1.25 E-01 ± 3.03 E+00	
Ba-140					<2. E 01	* -3.93 E+00 ± 1.10 E+01	
H-3					2.2 E 02 ± 1.9 E 02	quarterly composite	
Gross Beta					1.0 E 00 ± 0.7 E 00	1.6 E+00 ± 7.0 E-01	
Waterborne: Surface					Split	Pumphouse Intake Station 26	4936
	Mn-54	<2. E 00	* 1.61 E+00 ± 1.70 E+00				
	Fe-59	<5. E 00	* -1.17 E+00 ± 3.76 E+00				
	Co-58	<2. E 00	* -1.15 E+00 ± 1.67 E+00				
	Co-60	<3. E 00	* -1.39 E-01 ± 1.80 E+00				
	Zn-65	<5. E 00	* 2.03 E+00 ± 3.86 E+00				
	Zr-95	<5. E 00	* 2.02 E+00 ± 3.50 E+00				
	Cs-134	<3. E 00	* 3.47 E-01 ± 1.77 E+00				
	Cs-137	<3. E 00	* 2.76 E+00 ± 1.98 E+00				
	Ba-140	<2. E 01	* 2.69 E+00 ± 6.80 E+00				
	H-3	-0.3 E 02 ± 2. E 02	quarterly composite				
	Gross Beta	1.3 E 00 ± 0.8 E 00	3.0 E+00 ± 8.0 E-01				

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Location of Facility: WNP-2 - Hanford Reservation

Reporting Period: October-December 1988
4th Quarter

Exposure Pathway/Sample	Split or Duplicate	Location Name	Lab. #	Collection Date	Analysis/Isotope	State Results (pCi/L ± Error)	Licensee
Waterborne: Surface	Split	Pumphouse Intake Station 26	7671	12/15/88	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	6.0 E 01 ± 2.0 E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 1.6 E 02 ± 1.9 E 02 9.5 E-01 ± 7.3 E-01	* 9.73 E+01 ± 2.71 E+01 * 1.48 E+00 ± 1.93 E+00 * 1.71 E-01 ± 4.46 E+00 * -1.54 E+00 ± 1.99 E+00 * -9.15 E-01 ± 1.96 E+00 * 2.44 E+00 ± 4.50 E+00 * -2.57 E-01 ± 4.30 E+00 * -2.90 E-01 ± 2.21 E+00 * 3.34 E+00 ± 2.31 E+00 * -1.17 E+00 ± 7.78 E+00 * 1.1 E+02 ± 8.79 E+01 1.1 E+00 ± 7.0 E-01
	Split	Pumphouse Discharge Station 27	7453	10/12/88 (a)	K-40 Mn-54 Fe-59 Co-58 Co-60 Zn-65 Zr-95 Cs-134 Cs-137 Ba-140 H-3 Gross Beta	<3. E 01 <2. E 00 <5. E 00 <2. E 00 <3. E 00 <5. E 00 <5. E 00 <3. E 00 <3. E 00 <2. E 01 5.2 E 02 ± 1.9 E 02 1.6 E 01 ± 0.2 E 01	* 1.17 E+02 ± 3.03 E+01 * -8.54 E-01 ± 1.89 E+00 * 7.17 E-01 ± 4.41 E+00 * -1.11 E+00 ± 2.04 E+00 * 8.51 E-01 ± 2.21 E+00 * 7.31 E-01 ± 4.45 E+00 * 2.45 E+00 ± 4.24 E+00 * 7.67 E-02 ± 2.14 E+00 * 8.05 E-01 ± 2.21 E+00 * -5.44 E+00 ± 8.27 E+00 quarterly composite 2.6 E+01 ± 3.0 E+00

* Denotes a result less than the detection limit

(a) Sampler nonfunctional; grab samples taken and/or attempted during a portion of this time.