

BNWL-1727-ADD
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ENVIRONMENTAL SURVEILLANCE
AT HANFORD FOR CY-1972
DATA



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Environmental Monitoring Services

APRIL 1973

Prepared for the U.S. Atomic Energy
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ENVIRONMENTAL SURVEILLANCE AT HANFORD FOR CY-1972

by

P. E. Bramson and J. P. Corley
Occupational and Environmental Safety Department

May 1973

BATTELLE
PACIFIC NORTHWEST LABORATORIES
RICHLAND, WASHINGTON 99352

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Preface

This supplemental report is a compilation of results obtained from both analyses of environmental samples and from radiological measurements made in the Hanford environs during 1972. The significance of these data is discussed in the parent report (BNWL-1727).

The term "analytical limit" as used in this report is the concentration at which the laboratory can measure the radionuclide with a precision of $\pm 100\%$ at the 90% confidence level. The detection limit for a specific radionuclide varies with sample type, sample size, counting time, and the amounts of interfering radionuclides present. The "analytical limits" were chosen to represent upper bounds to these fluctuating detection limits.

The following rule has been applied for determining statistical detection levels for averaged data:

$$A.L._{avg.} = \frac{A.L._i}{\sqrt{n}}$$

The laboratory analytical level is divided by the square root of the number of averaged results to obtain the estimated analytical level for the average for the same confidence level and precision. This rule is applicable only when actual net counting data is available, as it is for most routine radioanalyses.

Air and sanitary water quality data included in this data tabulation were obtained and provided by M. J. Schultz, of the Hanford Environmental Health Foundation, Richland, Washington. The latter organization conducts the routine surveillance program of this kind at the Hanford plant for the Atomic Energy Commission. The radioanalyses documented here were performed by the U.S. Testing Company.

May 1973

P.E. Bramson

J.P. Corley

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APPENDIX A



APPENDIX A

TABLE 1
CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER AT VERNITA
(MONTHLY COMPOSITES OF WEEKLY GRAB SAMPLES) - 1972

<u>Date</u>	<u>Alpha</u>	<u>^{3}H</u>	<u>^{46}Sc</u>	<u>^{51}Cr</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs-137m}$</u>	<u>^{239}Pu</u>
Units of $10^{-9} \mu\text{Ci/ml}$ of Water										
Analytical Limit	0.3	220	25.	20.	15.	2.0	0.45	1.0	3.0	0.01
1/25	0.51	*					0.48			*
2/22	0.69	1400					*			
3/21	0.74	360.					*			
4/25	0.57	*					*			
5/23	0.51	*					*			
6/27	0.40	*					*			
7/25	0.45	*					*			
8/29	0.30	*					*			
9/26	0.46	*					2.0			
10/31	0.51	*					*			
11/28	0.64	*					*			
12/22	0.64	*					*			
Aug.-Dec. Average		*0.34	*6.6	*0.12	*0.52			1.2		
Annual Average	0.54	110.					0.50			*0.27
										0.008

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX A

TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER AT RICHLAND
(CUMULATIVE SAMPLES) - 1972

Date	<u>46</u> _{Sc}	<u>51</u> _{Cr}	<u>60</u> _{Co}	<u>65</u> _{Zn}	<u>131</u> _I	<u>137</u> _{Cs} - <u>137</u> ^m _{Ba}
Analytical Limit	25.	300.	15.	35.	6.0	20.
12/28-1/4	*	*	*	*	*	*
1/4-1/11	*	*	*	*	*	*
1/11-1/18	*	*	*	53.		*
1/18-1/25	*	590	*	*	*	*
1/25-2/1	*	620	*	*		*
2/1-2/8	*	300	*	*	*	*
2/8-2/15	*	*	*	*		*
2/15-2/22	*	*	*	*	6.4	*
2/22-2/29	*	*	*	*		*
2/29-3/7	*	*	*	*	*	*
3/7-3/14	*	*	*	*		*
3/14-3/21	*	*	*	*		*
3/21-3/28	*	*	*	*	*	*
3/28-4/4	*	*	*	*		*
4/4-4/11	*	700	33.	*		23.
4/11-4/18	*	*	*	*	*	*
4/18-4/25	*	*	20.	*		*
4/25-5/1	*	620	*	50.	*	25.
5/2-5/9	*	*	*	*		*
5/9-5/16	*	*	*	*		*
5/16-5/23	*	*	*	*	*	*
5/23-5/30	*	*	*	*	*	*
5/30-6/6	*	370	*	*		*
6/6-6/13	*	*	*	*	*	23.
6/13-6/20	*	*	*	*		*
6/20-6/27	*	*	*	*	*	*
6/27-7/5	*	*	*	*		*
7/5-7/11	*	*	*	*	*	*
7/11-7/18	*	*	*	49.		*
7/18-7/25	*	*	*	*	*	*
7/25-8/1	*	*	*	*		*
8/1-8/8	*	*	*	*	*	*
8/8-8/15	*	*	*	*		*
8/15-8/22	*	*	*	*	*	*

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX A

TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER AT RICHLAND
(CUMULATIVE SAMPLES) - 1972

Date	<u>46</u> _{Sc}	<u>51</u> _{Cr}	<u>60</u> _{Co}	<u>65</u> _{Zn}	<u>131</u> _I	<u>137</u> _{Cs} - <u>137</u> ^m _{Ba}
Analytical Limit	25.	300	15.	35.	6.0	20.
8/22-8/29	*	*	*	*		*
8/29-9/5	*	*	*	*	*	*
9/5-9/12	*	*	*	*		*
9/12-9/19	*	*	*	*		*
9/19-9/26	*	*	*	*	*	*
9/26-10/3	*	*	*	*	*	*
10/3-10/10	*	*	*	*		*
10/10-10/17	*	*	*	*	*	*
10/17-10/24	*	*	*	*		*
10/24-10/31	*	*	*	*	*	*
10/31-11/7	*	*	*	*		*
11/7-11/14	*	*	42.	60.	*	*
11/14-11/21	*	*	*	*		*
11/21-11/28	*	*	*	*	*	*
11/28-12/5	*	*	*	*		*
12/5-12/12	*	*	31.	*	*	*
12/12-12/19	*	*	*	*		*
12/19-12/22	*	*	*	*	*	*
12/22-1/2	*	*	*	*		
Annual Average	*3.7	94.	*3.9	*6.1	*1.0	*2.4

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX A

TABLE 3

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER AT RICHLAND
 (MONTHLY COMPOSITE OF WEEKLY CUMULATIVE SAMPLES) - 1972

Units of 10^{-9} $\mu\text{Ci}/\text{ml}$

Date	Alpha	^{3}H	^{32}P	^{65}Zn	^{90}Sr	$^{137}\text{Cs}-^{137}\text{mBa}$	^{239}Pu
Analytical Limit	0.3	220	6.0	2.0	0.5	3.0	0.01
12/28-1/25	0.92	1300	*		0.55		
1/25-2/22	0.90	*	*	*	*	*	*
2/22-3/21	0.92	*	*		*		
3/21-4/25	0.56	*	*		*		
4/25-5/23	0.58	*	*	2.0	*	*	0.06
5/23-6/27	0.48	*	*		*		
6/27-7/25	0.56	*	*		*		
7/25-8/29	0.55	220	*	*	*	*	*
8/29-9/26	0.79	*	*	*	*	*	
9/26-10/31	0.60	*	*		*	*	
10/31-11/28	0.64	*	*	*	*	*	*
11/28-12/22	0.58	*	*		*	*	
Annual Average	0.67	110	*0.30	*0.43	0.35	*0.31	0.02

* Result was less than the analytical limit shown.
 No entry indicates no specific analysis was made.

APPENDIX A

TABLE 4

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER
AT BONNEVILLE DAM
(MONTHLY COMPOSITE OF WEEKLY CUMULATIVE SAMPLES) - 1972

Units of 10^{-9} $\mu\text{Ci}/\text{ml}$

Analytical Limit	<u>^{46}Sc</u>	<u>^{65}Zn</u>
12/28-1/25	*	*
1/25-2/29	*	*
2/29-3/28	*	*
3/28-4/25	*	*
4/25-5/29	*	*
5/29-6/26	*	*
7/31-8/28	*	*
8/28-9/25	*	11.
9/25-10/30	*	*
10/30-11/27	*	*
11/27-12/25	*	*
Annual Average	*0.26	*1.7

APPENDIX A

TABLE 5

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES
IN THE COLUMBIA RIVER WATER AT RICHLAND
(CUMULATIVE SAMPLES) - 1972

Date	Average Ci/day	^{46}Sc	^{51}Cr	^{60}Co	^{65}Zn	^{131}I
12/28-1/4		* 0.10	* 0	* 0	* 3.2	*1.6
1/4-1/11		* 0	*24	* 0	* 0.07	*0.04
1/11-1/18		* 0.16	* 0	* 0	11.	
1/18-1/25		* 0.07	110	* 0	* 0.03	*0.78
1/25-2/1		* 4.3	154	* 0.11	* 3.8	
2/1-2/8		* 2.5	75	* 0	* 3.6	*0.21
2/8-2/15		* 0.08	* 0	* 0	* 0.03	
2/15-2/22		* 0	* 0	* 3.4	* 0	1.7
2/22-2/29		* 0.06	* 0	* 0.12	* 0	
2/29-3/7		* 2.2	* 0	* 3.7	* 0	*0.8
3/7-3/14		* 0	* 0.14	* 1.5	* 0	
3/14-3/21		1.6	29.	* 0	* 2.3	
3/21-3/28		* 0.06	*15	* 0	* 0.02	*0.72
3/28-4/4		* 0	* 0	* 4.4	* 0	
4/4-4/11		* 7.8	340	16.	11.	
4/11-4/18		* 0.11	* 0	* 0.22	* 0	*0.23
4/18-4/25		* 0	*18	6.1	* 0	
4/25-5/1		* 3.7	170	* 0	14.	*0.38
5/2-5/9		* 0.09	* 0	* 0.17	* 0	
5/9-5/16		* 5.9	* 0	* 0	* 0	
5/16-5/23		*12.	* 0	* 0	* 0	*1.0
5/23-5/30		* 9.7	* 0	* 1.7	* 0	*0.38
5/30-6/6		* 2.4	310	* 0	*19.	
6/6-6/13		* 7.9	* 0	* 8.6	* 0	*0.16
6/13-6/20		* 0	*36.	* 3.3	* 0	
6/20-6/27		*15.3	* 0	* 0.45	* 0	*0
6/27-7/5		* 0.35	*20.	* 0	* 0.13	
7/5-7/11		* 0.25	*78.	* 0	* 0.10	0.64
7/11-7/18		* 0.20	*45.	* 0	28.	
7/18-7/25		* 0.19	* 0	* 0	* 0.07	*0.12
7/25-8/1		* 0.16	*110	* 0	* 9.9	
8/1-8/8		* 0.16	* 0.48	* 0	* 0.06	*0.21
8/8-8/15		* 0.16	* 0.48	* 0	* 0.06	
8/15-8/22		* 0.13	* 0.38	* 0	* 0.05	*0.10
8/22-8/29		* 0.11	* 0.34	* 0	* 0.04	
8/29-9/5		* 0.11	* 0.32	* 0	* 0.04	*0.14

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX A

TABLE 5 (Continued)

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES
IN THE COLUMBIA RIVER WATER AT RICHLAND
(CUMULATIVE SAMPLES) - 1972

Date	Average Ci/day				
	<u>46</u> _{Sc}	<u>51</u> _{Cr}	<u>60</u> _{Co}	<u>65</u> _{Zn}	<u>131</u> _I
9/5-9/12	*0.10	*70.	*0	* 0	
9/12-9/19	*0.09	* 0.26	*0	* 0.03	
9/19-9/26	*0.08	*54.	*0	* 2.6	*0.10
9/26-10/3	*0.08	* 0.24	*0	* 0.03	*0.09
10/3-10/10	*0.04	* 0.19	*0.08	* 0	
10/10-10/17	*0.07	* 4.5	*0	* 0.03	0.13
10/17-10/24	*0.07	* 0.21	*0	* 0.03	
10/24-10/31	*2.5	*33.	*0	* 3.3	*0.09
10/31-11/7	*0.46	* 0	*1.3	* 0	
11/7-11/14	*0.98	*12.	8.1	12.	*0.11
11/14-11/21	*3.4	* 0	*2.9	* 0	
11/21-11/28	*4.5	*22.	*0	* 1.2	*0.10
11/28-12/5	*0	* 0	*2.0	* 1.4	
12/5-12/12	*0	*80.	9.9	* 0	0.43
12/12-12/19	*1.2	* 0	*0	* 4.2	
12/19-12/22	*0	*20.	*0.11	* 1.4	*0.10
12/22-1/2	*0	* 0	*0.89	* 5.8	
Annual Average	*1.7	*36.	*1.5	* 3.1	*0.35

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX A

TABLE 6

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES
 IN THE COLUMBIA RIVER AT RICHLAND
(MONTHLY COMPOSITE CUMULATIVE SAMPLES) - 1972

<u>Date</u>	<u>3_H</u>	<u>32_P</u>	<u>65_{Zn}</u>	<u>90_{Sr}</u>	<u>137_{Cs}</u>	<u>Alpha</u>
12/28-1/25	290	*0.32		0.12		0.21
1/25-2/22	*54.	*0.35	*0	*0.13	*0	0.22
2/22-3/21	* 0	*0.37		0.14		0.27
3/21-4/25	* 0	*0.10		0.09		0.25
4/25-5/23	* 7.3	*0	0.92	*0.12	*0.48	0.26
5/23-6/27	* 0	*0.58		0.11		0.43
6/27-7/25	* 0	*0		*0.20		0.38
7/25-8/29	89.	*0.16	*0.003	0.12	*0.003	0.22
8/29-9/26	* 0	*0.18	*0.17	*0.10	*0.15	0.19
9/26-10/31	*14.	*0.07		0.08	*0	0.12
10/31-11/28	*31.	*0.006	*0	0.04	*0.002	0.13
11/28-12-22	* 0			*0.14	*0.13	0.16
Annual Average	*40.	0.19	*0.22	*0.12	*0.11	0.24

* Result was less than the analytical limit shown.

APPENDIX A

TABLE 7

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN THE
COLUMBIA RIVER WATER AT BONNEVILLE DAM
(MONTHLY COMPOSITE CUMULATIVE SAMPLES) - 1972

<u>Date</u>	Average Ci/day	<u>⁴⁶Sc</u>	<u>⁶⁵Zn</u>
12/28-1/25		*0.32	*0
1/25-2/29		0.03	1.0
2/29-3/28		*0	*0
3/28-4/25		*0.35	*5.3
4/25-5/29		*0.02	*2.0
5/29-6/26		*0.04	*0.01
7/31-8/28		*0.01	*0.003
8/28-9/25		*0.48	3.7
9/25-10/30		*0.42	*0
10/30-11/27		*0	*0
11/27-12/25		*0	*0
Annual Average		*0.15	*1.1

* Result was less than the analytical limit shown.

APPENDIX A

TABLE 8

BETA ACTIVITY IN THE COLUMBIA RIVER AT RICHLAND
(CUMULATIVE SAMPLES) - 1972

Units of counts/minute/milliliter			
Date	Beta	Date	Beta
Analytical Limit	0.005	7/5-7/11	*
12/28-1/4	0.008	7/11-7/18	*
1/4-1/11	*	7/18-7/25	*
1/11-1/18	0.008	7/25-8/1	0.007
1/18-1/25	*	8/1-8/8	*
1/25-2/1	0.007	8/8-8/15	*
2/1-2/8	0.009	8/15-8/22	*
2/8-2/15	*	8/22-8/29	0.011
2/15-2/22	*	8/29-9/5	*
2/22-2/29	*	9/5-9/12	*
2/29-3/7	*	9/12-9/19	*
3/7-3/14	0.007	9/19-9/26	0.009
3/14-3/21	*	9/26-10/3	*
3/21-3/28	*	10/3-10/10	*
3/28-4/4	*	10/10-10/17	0.017
4/4-4/11	*	10/17-10/24	*
4/11-4/18	*	10/24-10/31	*
4/18-4/25	*	10/31-11/7	*
4/25-5/2	*	11/7-11/14	*
5/2-5/9	*	11/14-11/20	*
5/9-5/16	*	11/20-11/28	*
5/16-5/23	*	11/28-12/5	*
5/23-5/30	*	12/5-12/12	*
5/30-6/6	*	12/12-12/19	*
6/6-6/13	*	12/19-12/22	*
6/13-6/20	*	12/22-1/2	*
6/20-6/27	*	Annual	*0.003
6/27-7/5	0.007	Average	

* Results were less than the analytical limit shown.

APPENDIX A

TABLE 9

BETA ACTIVITY IN THE COLUMBIA RIVER AT 100-D
(GRAB SAMPLES) - 1972

Units of counts/minute/milliliter

<u>Date</u>	<u>Beta</u>
Analytical Limit	0.01
5/23	*
8/18	*
9/25	*
11/16	*
12/19	*
Annual Average	0.006

* Result was less than the analytical limit shown.



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BNWL-1727 ADD

APPENDIX B



APPENDIX B

TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN RICHLAND DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Date	Units of 10^{-9} $\mu\text{Ci}/\text{ml}$ of Water							
	<u>^{46}Sc</u>	<u>^{51}Cr</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{137}Cs</u>	<u>^{137m}Ba</u>	Alpha
Analytical Limit	23.	300.	20.	35.	0.40	16.		0.30
12/27-1/3	*	*	*	*		*		2.1
1/3-1/10	*	*	*	39.		*		1.2
1/10-1/17	*	*	*	*		*		*
1/17-1/24	*	*	*	*	*	*		1.0
1/24-1/31	*	*	*	*		*		0.92
1/31-2/7	*	*	*	*		*		1.6
2/7-2/14	*	*	23.	*		*		2.6
2/14-2/22	*	*	*	*	*	*		1.6
2/22-2/28	*	*	*	*		*		*
2/28-3/6	*	*	*	*		*		1.2
3/6-3/13	*	*	*	*		*		1.9
3/13-3/20	*	420.	27.	*		*		0.69
3/20-3/27	37.	*	30.	84.	*	*		3.9
3/27-4/3	*	*	*	*		*		0.69
4/3-4/10	*	*	*	*		49.		0.58
4/10-4/17	*	*	*	*		*		*
4/17-4/24	*	*	*	*	*	*		0.76
4/24-5/1	*	*	*	*		*		*
5/1-5/8	*	*	*	*		*		0.56
5/8-5/15	*	*	*	*		*		0.48
5/15-5/22	*	*	*	*	*	*		*
5/22-5/30	*	*	*	*		*		*
5/30-6/5	*	*	*	*		*		*
6/5-6/12	*	*	*	*		*		1.1
6/12-6/19	*	*	*	*		*		1.2
6/19-6/26	*	*	*	*	*	*		0.67
6/26-7/3	*	*	*	*		*		0.46
7/3-7/10	*	*	*	*		*		*
7/10-7/17	*	*	*	*		*		0.43
7/17-7/24	*	*	*	*	*	*		*
7/24-7/31	*	*	*	*		*		0.30
7/31-8/7	*	*	*	*		*		0.69
8/7-8/14	*	*	*	*		*		*
8/14-8/21	*	*	*	*	*	*		*
8/21-8/28	*	*	*	*		*		0.32
8/28-9/5	*	*	*	*		*		*

* Results were less than the analytical limit shown.
No entry indicates no analysis was made.

APPENDIX B

TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN RICHLAND DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

<u>Date</u>	<u>46</u> _{Sc}	<u>51</u> _{Cr}	<u>60</u> _{Co}	<u>65</u> _{Zn}	<u>90</u> _{Sr}	<u>137</u> _{Cs} - <u>137</u> ^m _{Ba}	<u>Alpha</u>
Analytical Limit	23.	300.	20.	35.	0.40	16.	0.30
9/5-9/11	*	*	*	*		*	*
9/11-9/18	*	*	*	*		*	0.42
9/18-9/25	*	*	*	*	*	*	1.1
9/25-10/2	*	*	*	*		*	*
10/2-10/9	*	*	*	*		*	0.57
10/9-10/16	*	*	*	*		*	0.42
10/16-10/23	*	*	*	*	*	*	*
10/23-10/30	*	*	*	*		*	0.56
10/30-11/6	*	*	23.	*		*	0.67
11/6-11/13	*	*	24.	*		*	*
11/13-11/20	*	*	*	*	*	*	0.39
11/20-11/27	*	*	*	*		*	*
11/27-12/4	*	*	*	*		*	*
12/4-12/11	*	*	*	*		*	0.44
12/11-12/18	*	*	20.	*		*	*
12/18-12/21	*	*	*	*	*	*	*
12/21-1/2	*	*	39.	*		*	0.51
Annual Average	*1.6	*43.	*5.3	*7.3	0.22	*2.4	0.71

* Results were less than the analytical limit shown.
No entry indicates no analysis was made.

APPENDIX B

TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN 300 AREA DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Date	Units of $10^{-9} \mu\text{Ci/ml}$ of Water					
	^{46}Sc	^{51}Cr	^{60}Co	^{65}Zn	$^{137}\text{Cs}-^{137m}\text{Ba}$	Alpha
Analytical Limit	23.	300.	20.	35.	16.	0.45
12/27-1/3	*	*	*	*	*	0.92
1/3-1/10	*	*	*	*	*	1.4
1/10-1/17	*	*	*	*	*	1.1
1/17-1/24	*	*	*	40.	*	1.4
1/24-1/31	*	*	*	*	*	1.6
1/31-2/7	*	*	*	*	*	*
2/7-2/14	*	*	*	*	*	0.76
2/14-2/22	*	*	*	*	*	0.85
2/22-2/28	*	*	*	44.	*	0.97
2/28-3/6	*	*	*	*	*	0.62
3/6-3/13	*	*	*	*	*	1.6
3/13-3/20	*	*	28.	*	*	*
3/20-3/27	*	*	*	*	*	*
3/27-4/3	*	*	*	*	*	0.86
4/3-4/10	*	*	*	*	*	0.99
4/10-4/17	*	*	*	*	*	0.79
4/17-4/24	*	*	20.	*	*	0.62
4/24-5/1	*	*	*	*	*	*
5/1-5/8	*	*	*	*	*	0.71
5/8-5/15	*	*	*	*	*	0.65
5/15-5/22	*	*	*	*	*	*
5/22-5/30	*	*	*	*	*	*
5/30-6/5	*	*	*	*	*	*
6/5-6/12	*	*	*	*	*	*
6/12-6/19	*	*	*	*	*	*
6/19-6/26	*	*	*	*	*	*
6/26-7/3	*	*	*	*	*	0.57
7/3-7/10	*	*	*	*	*	*
7/10-7/17	*	*	*	*	*	*
7/17-7/24	*	*	*	*	*	*
7/24-7/31	*	*	*	*	*	*
7/31-8/7	*	*	*	*	*	0.88
8/7-8/14	*	*	*	*	*	*
8/14-8/21	*	*	*	*	*	0.62
8/21-8/28	*	*	*	*	*	*
8/28-9/5	*	*	*	*	*	*

* Results were less than the analytical limit shown.

APPENDIX B

TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN 300 AREA DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

<u>Date</u>	Units of 10^{-9} $\mu\text{Ci}/\text{ml}$ of Water					
	<u>^{46}Sc</u>	<u>^{51}Cr</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{137}Cs</u> - <u>^{137m}Ba</u>	<u>Alpha</u>
Analytical Limit	23.	300.	20.	35.	16.	0.45
9/5-9/11	*	*	*	*	*	0.46
9/11-9/18	*	*	*	*	*	*
9/18-9/25	*	*	*	*	*	*
9/25-10/2	*	*	*	*	*	0.78
10/2-10/9	*	*	*	*	*	*
10/9-10/16	*	*	*	*	*	0.58
10/16-10/23	*	*	*	*	*	0.57
10/23-10/30	*	*	*	*	*	*
10/30-11/6	*	*	*	*	*	0.60
11/6-11/13	*	*	29.	*	*	*
11/13-11/20	*	*	*	*	*	*
11/20-11/27	*	*	22.	*	*	*
11/27-12/4	*	*	*	*	*	*
12/4-12/11	*	*	*	*	*	*
12/11-12/18	*	*	*	*	*	*
12/18-12/21	*	*	*	*	*	*
12/21-1/2	*	*	*	*	*	*
Annual Average	*1.1	*32.	*4.5	*3.0	*1.2	0.66

APPENDIX B

TABLE 3

ALPHA IN 100-H DRINKING WATER
(GRAB SAMPLES) - 1972

Units of 10^{-9} $\mu\text{Ci}/\text{ml}$ of Water

Date	Alpha
Analytical Limit	1.5
1/3	4.4
1/31	*
3/27	*
4/24	*
5/22	*
6/19	*
7/17	*
8/14	*
9/11	*
10/9	*
11/6	*
12/4	*
Annual Average	0.83

* Results were less than the analytical limit shown.

APPENDIX B

TABLE 4

BETA ACTIVITY IN RICHLAND DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Units of counts/minute/milliliter of Water

Date	c/m/ml	Date	c/m/ml
Analytical Limit	0.005		
12/27-1/3	*	7/3-7/10	*
1/3-1/10	*	7/10-7/17	*
1/10-1/17	*	7/17-7/24	*
1/17-1/24	*	7/24-7/31	*
1/24-1/31	*	7/31-8/7	.007
1/31-2/7	*	8/7-8/14	*
2/7-2/14	.008	8/14-8/21	*
2/14-2/22	.005	8/21-8/28	*
2/22-2/28	*	8/28-9/5	*
2/28-3/6	*	9/5-9/11	*
3/6-3/13	*	9/11-9/18	*
3/13-3/20	.007	9/18-9/25	.005
3/20-3/27	.006	9/25-10/2	*
3/27-4/3	*	10/2-10/9	*
4/3-4/10	*	10/9-10/16	*
4/10-4/17	*	10/16-10/23	*
4/17-4/24	.005	10/23-10/30	*
4/24-5/1	.006	10/30-11/6	*
5/1-5/8	*	11/6-11/13	*
5/8-5/15	*	11/13-11/20	*
5/15-5/22	*	11/20-11/27	*
5/22-5/29	*	11/27-12/4	*
5/29-6/5	*	12/4-12/11	*
6/5-6/12	*	12/11-12/18	*
6/12-6/19	*	12/18-12/21	*
6/19-6/26	*	12/21-1/2	*
6/26-7/3	.009	Annual Avg.	*-0.02

* Results were less than the analytical limit shown.

APPENDIX B

TABLE 5

BETA ACTIVITY IN 300 AREA DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Units of counts/minute/milliliter of Water

Date	c/m/ml	Date	c/m/ml
Analytical Limit	0.005		
12/27-1/3	0.009	7/3-7/10	*
1/3-1/10	*	7/10-7/17	*
1/10-1/17	0.005	7/17-7/24	*
1/17-1/24	*	7/24-7/31	0.005
1/24-1/31	*	7/31-8/7	*
1/31-2/7	*	8/7-8/14	*
2/7-2/14	*	8/14-8/21	*
2/14-2/22	0.006	8/21-8/28	*
2/22-2/28	*	8/28-9/5	*
2/28-3/6	*	9/5-9/11	*
3/6-3/13	0.008	9/11-9/18	*
3/13-3/20	*	9/18-9/25	*
3/20-3/27	*	9/25-10/2	*
3/27-4/3	*	10/2-10/9	*
4/3-4/10	*	10/9-10/16	*
4/10-4/17	*	10/16-10/23	0.009
4/17-4/24	*	10/23-10/30	*
4/24-5/1	*	10/30-11/6	*
5/1-5/8	*	11/6-11/13	*
5/8-5/15	*	11/13-11/20	*
5/15-5/22	*	11/20-11/27	*
5/22-5/29	*	11/27-12/4	*
5/29-6/5	*	12/4-12/11	*
6/5-6/12	*	12/11-12/18	*
6/12-6/19	*	12/18-12/21	*
6/19-6/26	*	12/21-1/2	*
6/26-7/3	*	Annual Avg.	0.003

* Results were less than the analytical limit shown.

APPENDIX B

TABLE 6

BETA ACTIVITY IN 100-H DRINKING WATER
(GRAB SAMPLES) - 1972

Units of counts/minute/milliliter of Water

Date	c/m/ml
Analytical Limit	0.01
1/3	0.01
1/31	*
2/28	*
3/27	*
4/24	*
5/16	*
6/19	*
7/17	*
8/14	0.01
9/11	*
10/9	*
11/6	*
12/4	*

Annual Avg. 0.005

* Results were less than the analytical limit shown.

APPENDIX B

TABLE 7

BETA ACTIVITY IN 100-N DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Units of counts/minute/milliliter of Water

Date	c/m/ml	Date	c/m/ml
Analytical Limit	0.005		
12/27-1/3	*	7/3-7/10	*
1/3-1/10	*	7/10-7/17	*
1/10-1/17	0.005	7/17-7/24	*
1/17-1/24	*	7/24-7/31	*
1/24-1/31	0.008	7/31-8/7	*
1/31-2/7	*	8/7-8/14	*
2/7-2/14	*	8/14-8/21	*
2/14-2/22	*	8/21-8/28	0.008
2/22-2/28	*	8/28-9/5	*
2/28-3/6	*	9/5-9/11	*
3/6-3/13	*	9/11-9/18	*
3/13-3/20	0.006	9/18-9/25	0.006
3/20-3/27	*	9/25-10/2	*
3/27-4/3	*	10/2-10/9	*
4/3-4/10	0.006	10/9-10/16	*
4/10-4/17	*	10/16-10/23	0.005
4/17-4/24	*	10/23-10/30	*
4/24-5/1	*	10/30-11/6	*
5/1-5/8	*	11/6-11/13	*
5/8-5/15	*	11/13-11/20	*
5/15-5/22	*	11/20-11/27	*
5/22-5/29	*	11/27-12/4	*
5/29-6/5	*	12/4-12/11	*
6/5-6/12	*	12/11-12/18	*
6/12-6/19	*	12/18-12/21	*
6/19-6/26	0.005	Annual Avg.	0.003
6/26-7/3	0.007		

* Results were less than the analytical limit shown.



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BNWL-1727 ADD

APPENDIX C



APPENDIX C

TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE OF WHITEFISH
TAKEN FROM THE COLUMBIA RIVER - 1972

<u>Date</u>	<u>24_{Na}</u>	<u>32_P</u>	<u>40_K</u>	<u>58_{Co}</u>	<u>60_{Co}</u>	<u>65_{Zn}</u>	<u>90_{Sr}</u>	<u>137_{Cs}-137^m_{Ba}</u>
Analytical Limit	0.6	1.0	1.0	0.15	0.15	0.2	0.002	0.10
<u>Ringold</u>								
1/6	*	*	4.8	*	*	0.66		0.21
1/31	*	*	3.5	*	0.16	0.92		0.21
2/14	*	*	3.5	*	*	0.60		0.21
3/10	*	*	4.4	*	*	0.91		0.18
3/28	*	*	3.3	*	*	0.71		0.18
4/14	*	*	3.2	*	*	*		*
4/27	*	*	4.3	*	*	0.69		0.31
5/10	*	*	3.4	*	*	0.55		0.14
5/24	*	*	3.1	*	*	0.44		0.15
6/1	*	*	4.1	*	*	0.52		0.15
6/26	*	*	3.5	*	*	0.23		*
7/13	*	*	2.6	*	*	0.31		0.16
7/21	*	*	3.0	*	*	0.38		0.22
8/9	*	*	2.9	*	*	0.26		0.18
9/7	*	1.3	2.6	*	*	*	0.003	0.15
9/27	*	*	3.5	*	*	*	*	0.14
10/4	*	1.2	3.3	*	0.17	*	*	0.21
10/23	*	*	3.0	*	0.18	*	0.002	0.18
11/2	*	1.6	4.9	*	*	0.25	*	0.15
11/21	*	1.8	3.7	*	*	0.23	*	0.10
12/15	*	*	3.9	*	*	0.23	*	0.18
Annual Average	*0.02	0.62	3.5	*0.0003	0.03	0.40	0.002	0.17

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX C

TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE OF
MISCELLANEOUS FISH TAKEN FROM THE COLUMBIA RIVER - 1972

<u>Date</u>	<u>Species</u>	<u>24</u> <u>Na</u>	<u>40</u> <u>K</u>	<u>58</u> <u>Co</u>	<u>60</u> <u>Co</u>	<u>65</u> <u>Zn</u>	<u>90</u> <u>Sr</u>	<u>137</u> <u>Cs</u> - <u>137</u> ^m <u>Ba</u>
Analytical Limit		0.6	1.0	0.15	0.15	0.2	0.002	0.10
<u>Burbank</u>								
7/26	Bass	*	2.2	*	*	0.29	*	*
7/26	Sturgeon	*	3.4	*	*	0.23	*	*
7/26	Catfish	*	2.4	*	*	0.21	0.003	*
<u>Coyote Rapids</u>								
9/18	Steelhead	*	3.6	*	*	*	*	*
<u>Richland</u>								
7/28	Bluegill	*	3.0	*	*	*	0.006	*

* Result was less than the analytical limit shown.

APPENDIX C

TABLE 3

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE LIVERS OF
WATERFOWL SAMPLES IN THE HANFORD ENVIRONS - 1972

Units of 10^{-6} $\mu\text{Ci}/\text{gm}$ (wet weight)

<u>Date</u>	<u>Species</u>	<u>U</u>	<u>Pu</u>
Analytical Limit		0.002	0.003
<u>300 Area Pond</u>			
3/30	Mallard	0.002	*
6/20	Mallard	0.011	0.008
9/28	Mallard	0.15	*
11/30	Mallard	0.024	*
11/30	Mallard	0.024	*
Annual Average		0.046	0.003
<u>100-F Trench</u>			
6/26	Blue Wing Teal		*
9/8	Mallard		*
12/4	Mallard		
Annual Average			*0.0004
<u>Honey Hill Pond</u>			
9/26	Gr. Wing Teal	0.010	
<u>U-Swamp</u>			
3/15	Coot	0.009	
11/8	Mallard	0.48	
Annual Average		0.24	

* Result was less than the analytical limit shown.
No entry indicates no specific analysis was made.

APPENDIX C

TABLE 4

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES ALONG THE RIVER IN THE HANFORD ENVIRONS - 1972

Units of 10^{-6} $\mu\text{Ci/gm}$ (wet weight)

Date	Species	^{40}K	^{58}Co	^{60}Co	^{65}Zn	^{90}Sr	^{137}Cs - ^{137m}Ba
Analy. Limit		2.4	0.15	0.15	0.2	0.002	0.18
<u>DUCKS</u>							
<u>Hanford (River)</u>							
11/20	Gr. Wing Teal	*	*	*	*	0.007	*
11/20	Gr. Wing Teal	*	*	*	*	0.005	*
11/20	Gr. Wing Teal	*	*	*	*	*	*
11/20	Gr. Wing Teal	5.0	*	0.24	*	*	*
11/22	Mallard	2.5	*	*	*	*	*
11/22	Mallard	2.5	*	*	*	0.002	*
11/22	Gr. Wing Teal	*	*	*	*	0.004	*
11/22	Gr. Wing Teal	*	*	*	*	*	*
11/22	Gr. Wing Teal	3.4	*	*	*	*	*
11/22	Gr. Wing Teal	3.0	*	*	*	0.006	*
11/22	Gr. Wing Teal	3.3	*	*	*	0.004	*
11/22	Gr. Wing Teal	*	*	*	*	*	*
11/22	Gr. Wing Teal	3.4	*	*	*	0.004	*
11/29	Gr. Wing Teal	*	*	*	*	*	*
11/29	Gr. Wing Teal	3.9	*	*	*	0.009	*
11/29	Gr. Wing Teal	*	*	*	*	*	*
11/29	Gr. Wing Teal	*	*	*	*	0.004	*
11/29	Gr. Wing Teal	*	*	*	*	*	*
11/29	Gr. Wing Teal	*	*	*	*	*	*
11/29	Gr. Wing Teal	4.1	*	*	*	0.004	*
11/29	Gr. Wing Teal	*	*	*	*	0.005	*
11/29	Gr. Wing Teal	4.2	*	*	*	*	*
11/29	Gr. Wing Teal	*	*	*	*	*	1.2
11/29	Gr. Wing Teal	4.9	*	*	*	*	*
11/29	Gr. Wing Teal	*	*	*	*	*	*
11/29	Gr. Wing Teal	*	*	*	*	*	*
11/29	Gr. Wing Teal	3.5	*	*	*	0.003	*
11/29	Mallard	3.4	*	*	*	0.010	*
Annual Average		2.6	*0.003	*0.018	0.061	0.003	0.09

* Less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 4 (Continued)

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES ALONG THE RIVER IN THE HANFORD ENVIRONS - 1972

Units of 10^{-6} $\mu\text{Ci}/\text{gm}$ (wet weight)						
Date	Species	^{40}K	^{60}Co	^{65}Zn	^{90}Sr	$^{137}\text{Cs}-^{137m}\text{Ba}$
Analy. Limit		2.4	0.15	0.2	0.002	0.1
<u>GEESE</u>						
	<u>100-D</u>					
1/4	Can. Honker	2.9	*	0.33		*
2/7	Can. Honker	2.7	*	0.26		*
12/1	Can. Honker	*	*	*	0.002	*
Annual	Average	2.5	*	0.18		*0.033
	<u>100-N</u>					
2/15	Can. Honker	2.8	*	*		*
11/1	Can. Honker	2.9	*	*		0.17
11/7	Can. Honker	2.5	*	*		*
Annual	Average	2.8	*	*0.11		*0.06
	<u>100-F</u>					
11/13	Can. Honker	2.4	*	*	*	0.23
	<u>100-B</u>					
11/30	Can. Honker	*	*	*	*	0.14
12/8	Can. Lesser	3.4	*	*	*	*
12/8	Can. Lesser	*	*	*	0.002	*
12/8	Can. Lesser	3.2	*	*	*	*
12/8	Can. Lesser	2.4	*	*	*	*
12/8	Can. Lesser	2.4	*	*	*	*
12/8	Can. Lesser	3.1	*	*	0.002	*
Annual	Average	2.4	*0.004	*	0.002	0.092
	<u>Hanford</u>					
12/14	Can. Lesser	2.7	*	*	*	*

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 4 (Continued)

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES ALONG THE RIVER IN THE HANFORD ENVIRONS - 1972

<u>Date</u>	<u>Species</u>	Units of 10^{-6} $\mu\text{Ci}/\text{gm}$ (wet weight)					
		<u>^{40}K</u>	<u>^{58}Co</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{137}Cs-^{137m}Ba</u>
Analy. Limit		2.4	0.15	0.15	0.2	0.002	0.1
<u>GEESE</u>							
<u>100-H</u>							
2/7	Can. Lesser	2.5	*	*	*		*
10/3	Can. Lesser	4.7	0.57	*	0.37		0.68
Annual Average		3.6	0.29	*0.031	0.20		0.36
<u>100-K</u>							
1/18	Can. Lesser	2.7	*	*	*		0.97
1/19	Can. Lesser	3.4	*	*	*		*
Annual Average		3.1			*0.078		0.51
<u>White Bluffs</u>							
1/4	Can. Lesser	4.0	*	*	*		*
1/18	Can. Lesser	4.1	*	*	0.25		*
1/18	Can. Lesser	2.8	*	*	*		*
1/18	Can. Lesser	2.8	*	*	*		*
2/7	Can. Hunker	3.0	*	*	*		*
2/7	Can. Lesser	2.8	*	*	*		*
2/7	Can. Lesser	3.0	*	*	*		*
2/7	Can. Lesser	2.5	*	*	*		*
2/7	Can. Lesser	3.0	*	*	*		*
11/30	Can. Hunker	2.4	*	*	*	0.005	0.16
12/1	Can. Lesser	2.4	*	*	*	*	*
12/1	Can. Lesser	2.3	*	*	*	0.003	*
12/1	Can. Lesser	2.4	*	*	*	0.017	*
Annual Average		2.8			*0.048	0.006	0.073

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 4 (Continued)

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES ALONG THE RIVER IN THE HANFORD ENVIRONS - 1972

Units of $10^{-6} \mu\text{Ci/gm}$ (wet weight)						
Date	Species	^{40}K	^{58}Co	^{60}Co	^{65}Zn	^{90}Sr
Analyt. Limit		2.4	0.15	0.15	0.2	0.002
<u>DUCKS</u>						
<u>100-F (River)</u>						
11/20	Mallard	3.3	*	*	0.20	*
11/20	Mallard	*	*	*	*	*
11/20	Mallard	2.5	*	*	*	0.002
11/20	Mallard	2.4	*	*	0.24	0.006
11/29	Mallard	3.0	*	*	*	0.008
11/29	Mallard	*	*	*	*	0.002
11/29	Mallard	3.7	*	*	*	*
11/29	Mallard	2.5	*	*	*	*
11/29	Mallard	3.4	*	*	*	*
Annual Average		3.4	*0.037	*0.041	*0.065	0.004
						*0.093
<u>300 Area (River)</u>						
11/2	Mallard	*	*	*	*	*
<u>100-H (River)</u>						
1/20	Merganser	3.1	*	*	0.28	*
2/23	Merganser	2.4	*	*	0.36	*
Annual Average		2.8	*	*	0.32	*0.082
<u>100-K (River)</u>						
11/9	Old Squaw	3.2	*	*	*	*

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 4 (Continued)

**CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES ALONG THE RIVER IN THE HANFORD ENVIRONS - 1972**

<u>Date</u>	<u>Species</u>	Units of 10^{-6} $\mu\text{Ci}/\text{gm}$ (wet weight)					
		<u>^{40}K</u>	<u>^{58}Co</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{137}Cs-^{137m}Ba</u>
Analy. Limit		2.4	0.15	0.15	0.2	0.002	0.18
<u>DUCKS</u>							
<u>100-F (River)</u>							
1/17	Mallard	3.8	*	*	*		*
1/17	Mallard	3.0	*	*	*		*
1/17	Mallard	2.6	*	*	*		*
1/17	Mallard	3.4	*	*	*		*
1/17	Mallard	2.6	*	*	*		*
1/17	Mallard	3.0	*	*	*		*
10/31	Mallard	4.0	*	*	*	0.004	0.20
11/1	Mallard	3.7	*	*	*	0.005	*
11/1	Mallard	*	*	*	*	0.007	*
11/1	Mallard	3.0	*	*	*	0.004	*
11/1	Mallard	3.8	*	*	*	0.014	*
11/1	Mallard	3.4	*	*	0.19	0.004	*
11/1	Mallard	3.8	*	*	*	0.004	*
11/7	Mallard	*	*	*	*		*
11/7	Mallard	2.5	*	*	*		*
11/7	Mallard	*	*	*	*		*
11/7	Mallard	2.8	*	*	*		*
11/7	Mallard	2.5	*	*	*		*
11/9	Mallard	2.6	*	*	*	*	*
11/9	Mallard	3.6	*	*	0.28	0.004	*
11/9	Mallard	3.6	*	*	0.46	0.002	*
11/13	Mallard	3.3	*	*	0.23	0.003	*
11/14	Mallard	3.4	*	*	*	0.003	*
11/14	Mallard	*	*	*	*	0.003	*
11/14	Mallard	*	*	*	*	0.005	*
11/15	Mallard	3.4	*	*	*	*	*
11/15	Mallard	2.4	*	*	*	0.005	*
11/15	Mallard	5.2	*	*	0.22	0.002	0.21
11/15	Mallard	*	*	*	*	*	*
11/15	Mallard	2.7	*	*	0.32	0.003	*
Annual Average		3.4	*0.037	*0.041	*0.065	0.004	*0.093

*Results were less than the analytical limit shown.

No entry indicates no analysis was made.

APPENDIX C

TABLE 5

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES FROM THE PONDS IN THE HANFORD ENVIRONS - 1972

Units of 10^{-6} $\mu\text{Ci/gm}$ (wet weight)

<u>Date</u>	<u>Species</u>	<u>^{40}K</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy. Limit		2.4	0.15	0.2	0.002	0.1
<u>DUCKS</u>						
<u>T-Swamp</u>						
3/30	Mallard	9.5	0.20	0.40	0.003	70.0
<u>300 Area Pond</u>						
3/30	Mallard	2.5	*	*	*	*
6/20	Mallard	2.8	*	*	0.002	*
9/28	Mallard	2.9	*	*	*	*
11/30	Mallard	2.3	*	*	*	*
11/30	Mallard	2.3	*	*	*	*
Annual Average		2.6	*0.0005	*0.045	*0.0006	*0.041
<u>B-Swamp</u>						
3/4	Golden Eye	3.2	*	*		1.1
5/25	Shoveler	3.0	*	*	0.003	0.33
9/8	Coot	5.5	*	*	0.003	3.8
11/29	Mallard	4.4	*	*	0.003	8.0
Annual Average		4.0	*	0.11	0.003	3.3
<u>100-F Trench</u>						
6/26	Blue Wing Teal	3.5	*	0.41	0.080	0.25
9/8	Mallard	2.2	*	*	0.037	*
12/4	Mallard	2.8	*	*	0.22	*
Annual Average		2.8	*	0.14	0.11	0.14
<u>Honey Hill Pond</u>						
9/26	Gr. Wing Teal	2.6	*	*	*	4.2

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 5 (Continued)

CONCENTRATIONS OF SELECTED RADIONUCLIDES IN THE MUSCLE OF
WATERFOWL SAMPLES FROM THE PONDS IN THE HANFORD ENVIRONS - 1972

<u>Date</u>	<u>Species</u>	Units of 10^{-6} $\mu\text{Ci/gm}$ (wet weight)				
		<u>^{40}K</u>	<u>^{60}Co</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{137}Cs</u> - <u>^{137m}Ba</u>
Analy. Limit		2.4	0.15	0.2	0.002	0.1
<u>DUCKS</u>						
<u>Redox Swamp</u>						
3/15	Coot	*	*	*	0.10	6.0
6/26	Mallard	3.2	*	*	0.005	0.26
Annual Average		2.8	*0.001	*0.029	0.054	3.1
<u>Gable Swamp</u>						
3/14	Mallard	2.8	*	*		3.5
5/25	Mallard	4.6	*	*	0.004	0.43
9/8	Mallard	4.4	*	*	0.003	55.0
11/10	Merganser	3.3	*	0.22	0.002	45.0
Annual Average		3.8	*0.034	*0.013	0.003	26.0
<u>U-Swamp</u>						
3/15	Coot	*	*	*	0.007	12.0
11/8	Mallard	3.4	*	*	0.005	42.0
Annual Average		2.9	*0.024	*	0.006	27.0

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 6

CONCENTRATIONS OF RADIONUCLIDES IN UPLAND GAME BIRD SAMPLES
IN THE HANFORD ENVIRONS - 1972

Units of 10^{-6} $\mu\text{Ci/gm}$ (wet weight)							
Date	Species	^{40}K	^{60}Co	^{65}Zn	^{90}Sr	$^{95}\text{ZrNb}$	$^{137}\text{Cs}-^{137m}\text{Ba}$
Analy. Limit		1.7	0.15	0.2	0.002	0.07	0.1
<u>100-B</u>							
11/30	Pheasant	3.2	*	*	*	*	*
11/30	Pheasant	*	*	*	*	*	*
11/30	Pheasant	2.8	*	*	0.003	*	*
Annual	Average	2.6	*	*	0.001	*	*0.025
<u>100-D</u>							
1/3	Pheasant	3.1	*	*	0.004	*	*
11/14	Pheasant	2.8	*	0.29		*	*
11/22	Pheasant	3.3	*	*	*	*	0.15
11/22	Pheasant	2.5	*	*	*	*	*
11/29	Pheasant	2.1	*	*	0.003	*	*
11/29	Pheasant	2.5	*	*	*	*	*
Annual	Average	2.9	*	*0.02	0.002	*	*0.034
<u>100-F</u>							
11/17	Pheasant	2.4	*	*	0.006	0.09	*
11/17	Pheasant	2.6	*	*	0.005	*	0.14
Annual	Average	2.5	*0.002	*	0.006	0.026	0.13
<u>White Bluffs</u>							
1/3	Pheasant	2.6	*	*	0.003	*	*
11/2	Pheasant	2.9	*	*	*	*	0.11
11/2	Pheasant	2.2	*	*	*	*	0.11
12/1	Pheasant	1.8	*	*	*	*	*
Annual	Average	2.3	*0.016	*0.051	0.002	*	*0.048

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX C

TABLE 6 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN UPLAND GAME BIRD SAMPLES
IN THE HANFORD ENVIRONS - 1972

<u>Date</u>		Units of 10^{-6} $\mu\text{Ci/gm}$ (wet weight)					
		<u>40</u> _K	<u>60</u> _{Co}	<u>65</u> _{Zn}	<u>90</u> _{Sr}	<u>95</u> _{ZrNb}	<u>137</u> _{Cs} - <u>137</u> ^m _{Ba}
Analy. Limit		1.7	0.15	0.2	0.002	0.7	0.1
<u>Hanford</u>							
1/3	Pheasant	3.0	*	*	0.004	*	*
12/4	Pheasant	3.2	*	*	0.007	*	*
12/4	Pheasant	*	*	0.56	0.006	*	*
12/11	Pheasant	3.4	*	0.23	0.003	*	0.11
12/11	Pheasant	3.5	*	*	0.002	*	0.16
12/14	Pheasant	2.2	*	*	0.004	*	0.13
12/14	Pheasant	3.0	*	*	0.008	*	0.20
12/14	Pheasant	3.3	*	*		*	0.24
Annual Average		2.9	*	*0.12	0.004	*	0.11
<u>300 Area</u>							
1/4	Pheasant	3.2	*	*	*	*	*

* Results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX D



APPENDIX D

TABLE 1

CONCENTRATION OF RADIONUCLIDES IN OYSTERS
FROM WILLAPA BAY, WASHINGTON - 1972

Date	^{40}K	^{65}Zn	$^{137}\text{Cs}-^{137}\text{mBa}$
Analytical Limit	1.0	0.2	0.025
1/3	1.7	2.5	*
2/1	1.5	2.1	*
2/28	1.4	1.8	*
4/15	1.7	2.4	0.030
5/2	1.3	1.6	*
6/8	2.1	1.7	0.053
7/18	1.8	1.2	0.030
8/10	1.8	1.4	0.045
9/8	1.9	0.90	0.030
Annual Average	1.7	1.7	0.025

* The result was less than the analytical limit shown.



APPENDIX E

APPENDIX E

TABLE 1
CONCENTRATIONS OF I-131 IN THE AIR OF THE HANFORD ENVIRONS - 1972
 Units of $10^{-12} \mu\text{Ci/ml}$ of Air (Continuous Samples)

Approx. Wk. On Date	Ringold	Eastern Quadrant				Berg Ranch	Wahluke Watermaster	New Moon
		Byers Landing	Richland	Pasco	Othello	Connell		
12/29	*	*	*	*	*	*	*	*
1/5	*	*	*	*	*	*	*	*
1/12	*	*	*	*	*	*	*	*
1/19	*	*	*	*	*	*	*	*
1/26	*	*	*	*	*	*	*	*
2/2	*	*	*	*	*	*	*	*
2/9	*	*	*	*	*	*	*	*
2/16	*	*	*	*	*	*	*	*
2/23	*	*	*	*	*	*	*	*
3/1	*	*	*	*	*	*	*	*
3/8	*	*	*	*	*	*	*	*
3/15	*	*	*	*	*	*	*	*
3/22	*	*	*	*	*	*	*	*
3/29	*	*	*	*	*	*	*	*
4/5	*	*	*	*	*	*	*	*
4/12	*	*	*	*	*	*	*	*
4/19	*	*	*	*	*	*	*	*
4/26	*	*	*	*	*	*	*	*
5/3	*	*	*	*	*	*	*	*
5/10	*	*	*	*	*	*	*	*
5/17	*	*	*	*	*	*	*	*
5/24	*	*	*	*	*	*	*	*
5/31	*	*	*	*	*	*	*	*
6/7	*	*	*	*	*	*	*	*

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Indicates the results were less than the analytical limit of $0.07 \times 10^{-12} \mu\text{Ci/ml}$.

APPENDIX E

TABLE 1 (Continued)
 CONCENTRATIONS OF I-131 IN THE AIR OF THE HANFORD ENVIRONS - 1972
 Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)
Eastern Quadrant

<u>Approx. Wk. On Date</u>	<u>Ringold</u>	<u>Byers Landing</u>	<u>Richland</u>	<u>Pasco</u>	<u>Othello</u>	<u>Connell</u>	<u>Berg Ranch</u>	<u>Wahluke Watermaster</u>	<u>New Moon</u>
6/14	*	*	*	*	*	*	*	*	*
6/21	*	*	*	*	*	*	*	*	*
6/28	*	*	*	*	*	*	*	*	*
7/5	*	*	*	*	*	*	*	*	*
7/12	*	*	*	*	*	*	*	*	*
7/19	*	*	*	*	*	*	*	*	*
7/26	*	*	*	*	*	*	*	*	*
8/2	*	*	*	*	*	*	*	*	*
8/9	*	*	*	*	*	*	*	*	*
8/16	*	*	*	*	*	*	*	*	*
8/23	*	*	*	*	*	*	*	*	*
8/30	*	*	*	*	*	*	*	*	*
9/6	*	*	*	*	*	*	*	*	*
9/13	*	*	*	*	*	*	*	*	*
9/20	*	*	*	*	*	*	*	*	*
9/27	*	*	*	*	*	*	*	*	*
10/4	*	*	*	*	*	*	*	*	*
10/11	*	*	*	*	*	*	*	*	*
10/18	*	*	*	*	*	*	*	*	*
10/25	*	*	*	*	*	*	*	*	*
11/1	*	*	*	*	*	*	*	*	*
11/8	*	*	*	*	*	*	*	*	*
11/15	*	*	*	*	*	*	*	*	*
11/22	*	*	*	*	*	*	*	*	*
11/29	*	*	*	*	*	*	*	*	*
12/6	*	*	*	*	*	*	*	*	*
12/13	*	*	*	*	*	*	*	*	*
12/19	*	*	*	*	*	*	*	*	*
Annual Avg.	*-0.0003	*0.001	*0.011	*-0.003	*0.008	*0.004	*0.001	*-0.002	*-0.0005

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Indicates the results were less than the analytical limit of $0.07 \times 10^{-12} \mu\text{Ci}/\text{ml}$.

APPENDIX E

TABLE 2 (PART A)
 CONCENTRATIONS OF RADIOACTIVE BETA PARTICULATES IN THE AIR OF THE HANFORD ENVIRONS - 1972

Approx. Wk. On Date	Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)						EASTERN QUADRANT				WESTERN QUADRANT			
	Ringold	Byers Landing	Richland	Pasco	Kennewick	Eltopia	Othello	Connell	Berg Ranch	Wahluke	Watermaster	New Moon		
12/29	0.16	0.09	0.09	0.10	0.08	0.05	0.11	0.09	0.11	0.11	0.09	0.08	-41-	0.08
1/5	0.12	0.09	0.09	0.10	0.08	0.10	0.11	0.17	0.10	0.10	0.09	0.11		0.11
1/12	0.12	0.10	0.10	0.10	0.14	0.10	0.11	0.17	0.10	0.10	0.09	0.11		0.11
1/19	0.16	0.10	0.10	0.10	0.14	0.13	0.16	0.18	0.16	0.12	0.12	0.20		0.20
1/26	0.16	0.25	0.26	0.03	0.13	0.16	0.18	0.16	0.12	0.12	0.12	0.20		0.20
2/2	0.15	0.25	0.26	0.03	0.23	0.11	0.15	0.13	0.15	0.14	0.14	0.17		0.17
2/9	0.15	0.12	0.13	0.13	0.10	0.11	0.15	0.13	0.15	0.14	0.14	0.17		0.17
2/16	0.08	0.12	0.13	0.13	0.10	0.07	0.05	0.06	0.09	0.07	0.07	0.08		0.08
2/23	0.08	0.05	0.07	0.06	0.10	0.07	0.05	0.06	0.09	0.07	0.07	0.08		0.08
3/1	0.08	0.05	0.07	0.06	0.10	0.09	0.04	0.09	0.08	0.06	0.06	0.08		0.08
3/8	0.08	0.08	0.07	0.08	0.10	0.09	0.04	0.09	0.08	0.06	0.06	0.08		0.08
3/15	0.10	0.08	0.07	0.08	0.10	0.11	0.16	0.17	0.14	0.08	0.08	0.10		0.10
3/22	0.10	0.18	0.19	0.18	0.20	0.11	0.16	0.17	0.14	0.08	0.08	0.10		0.10
3/29	0.57	0.18	0.22	0.18	0.20	0.18	0.16	0.16	0.92	0.16	0.16	0.16		0.16
4/5	0.57	0.11	0.20	0.14	0.12	0.18	0.16	0.16	0.92	0.16	0.16	0.16		0.16
4/12	0.22	0.11	0.20	0.14	0.12	0.10	0.11	0.11	0.19	0.10	0.10	0.17		0.17
4/19	0.22	0.24	0.12	0.20	0.09	0.10	0.11	0.11	0.19	0.10	0.10	0.17		0.17
4/26	0.49	0.24	0.12	0.20	0.09	0.26	0.22	0.58	0.49	0.10	0.10	0.26		0.26
5/3	0.49	0.45	0.43	0.43	0.39	0.26	0.22	0.58	0.49	0.10	0.10	0.26		0.26
5/10	0.34	0.45	0.43	0.43	0.39	0.14	0.32	0.48	0.29	0.10	0.10	0.43		0.43
5/17	0.34	0.20	0.32	0.31	0.25	0.14	0.32	0.48	0.29	0.10	0.10	0.43		0.43
5/24	0.25	0.20	0.32	0.31	0.25	0.40	0.44	0.63	0.50	0.50	0.50	0.46		0.46
5/31	0.25	0.31	0.26	0.40	0.34	0.40	0.44	0.63	0.50	0.50	0.50	0.46		0.46
6/7	0.24	0.31	0.26	0.40	0.34	0.21	0.22	0.23	0.23	0.25	0.25	0.19		0.19
6/14	0.24	0.17	0.21	0.17	0.18	0.21	0.22	0.21	0.23	0.25	0.25	0.19		0.19
6/21	0.22	0.17	0.21	0.17	0.18	0.23	0.33	0.33	0.28	0.21	0.22	0.22		0.22
6/28	0.22	0.31	0.30	0.31	0.29	0.23	0.33	0.33	0.28	0.21	0.21	0.22		0.22

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Results were less than the analytical limit of $0.02 \times 10^{-12} \mu\text{Ci}/\text{ml}$.
 No entry indicates no analysis was made.

APPENDIX E

TABLE 2 (Part A, Continued)
 CONCENTRATIONS OF RADIOACTIVE BETA PARTICULATES IN THE AIR OF THE HANFORD ENVIRONS - 1972

Approx. Wk. On Date	Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)						EASTERN QUADRANT				WESTERN QUADRANT			
	Ringold	Byers	Landing	Richland	Pasco	Kennewick	Eltopia	Othello	Connell	Berg Ranch	Wahluke Watermaster	New Moon		
7/5	0.26	0.31	0.30	0.31	0.29	0.22	0.24	0.21	0.29	0.26	0.26	0.20		
7/12	0.26	0.24	0.26	0.27	0.44	0.22	0.24	0.21	0.29	0.26	0.26	0.20		
7/19	0.27	0.24	0.26	0.27	0.44	0.32	0.30	0.36	0.32	0.26	0.26	0.25		
7/26	0.27	0.29	0.31	0.35	0.25	0.32	0.30	0.36	0.32	0.26	0.26	0.25		
8/2	0.24	0.29	0.31	0.35	0.25	0.27	0.27	0.18	0.32	0.21	0.18			
8/9	0.24	0.15	0.16	0.17	0.14	0.27	0.27	0.18	0.32	0.21	0.18			
8/16	0.13	0.15	0.16	0.17	0.14	0.12	0.18	0.16	0.14	0.08	0.13			
8/23	0.13	0.16	0.14	0.13	0.13	0.12	0.18	0.16	0.14	0.08	0.13			
8/30	0.11	0.16	0.14	0.13	0.13	0.13	0.13	0.09	0.09	0.10	0.09	0.09		
9/6	0.11	0.08	0.09	0.10	0.08	0.13	0.09	0.09	0.10	0.08	0.08	0.09		
9/13	0.06	0.08	0.09	0.10	0.08	0.12	0.07	0.06	0.08	0.06	0.06	0.08		
9/20	0.06	0.09	0.08	0.07	0.09	0.12	0.07	0.06	0.08	0.06	0.06	0.08		
9/27	0.12	0.09	0.08	0.07	0.09	0.08	0.08	0.11	0.10	0.08	0.08	0.09		
10/4	0.12	0.13	0.13	0.10	0.10	0.08	0.11	0.10	0.13	0.08	0.08	0.09		
10/11	0.13	0.13	0.13	0.10	0.10	0.07	0.09	0.08	0.11	0.07	0.07	0.07		
10/18		0.08	0.08	0.08	0.08	0.07	0.09	0.08	0.11	0.07	0.07	0.07		
10/25	0.07	0.08	0.08	0.08	0.08	0.05	0.05	0.25	0.06	0.08	0.06	0.06		
11/1	0.07	0.09	0.10	0.07	0.10	0.05	0.25	0.06	0.08	0.13	0.08	0.09		
11/8	0.16	0.09	0.10	0.07	0.10	0.08	0.11	0.09	0.12	0.10	0.09	0.09		
11/15	0.16	0.14	0.12	0.11	0.08	0.08	0.11	0.09	0.12	0.10	0.09	0.09		
11/22	0.05	0.14	0.12	0.11	0.08	0.04	0.11	0.09	0.04	0.04	0.04	0.09		
11/29	0.05	0.06	0.08	**	0.10	0.04	0.06	0.05	0.04	0.04	0.04	0.04		
12/6	0.15	0.06	0.08	**	0.10	0.12	0.14	0.12	0.16	0.10	0.11	0.11		
12/13	0.15	0.07	0.15	0.14	0.07	0.12	0.14	0.12	0.16	0.10	0.11	0.11		
12/19	0.03	0.06	0.09	0.09	0.07	0.03	0.03	*				0.03		
Annual Avg.	0.18	0.16	0.17	0.17	0.16	0.15	0.18	0.16	0.22	0.14	0.14	0.16		

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Results were less than the analytical limit of $0.02 \times 10^{-12} \mu\text{Ci}/\text{ml}$.

** Invalid data.

No entry indicates no analysis was made.

APPENDIX E

TABLE 2 (Part B)

CONCENTRATIONS OF RADIOACTIVE BETA PARTICULATES IN THE AIR
OF THE HANFORD ENVIRONS - 1972

Approx. Wk. On Date	Moses Lake	PERIMETER COMMUNITIES				
		Washtucna	Walla Walla	McNary Dam	Ellensburg	Sunnyside
12/28	0.12		0.07	0.12	0.06	0.09
1/7	0.11		0.07	0.12	0.09	0.06
1/14	0.11	0.09	0.14	0.28	0.09	0.06
1/21	0.16	0.09	0.14	0.28	0.09	0.10
1/28	0.16	0.16	0.13	0.22	0.14	0.10
2/4	0.15	0.16	0.13	0.22	0.14	0.05
2/11	0.15	0.06	0.13	0.10	0.06	0.05
2/18	0.07	0.06	0.06	0.10	0.06	0.08
2/25	0.07	0.06	0.06	0.11	0.06	0.08
3/3	0.07	0.06	0.09	0.11	0.04	0.07
3/10	0.07	0.08	0.09	0.12	0.04	0.07
3/17	0.20	0.08	0.09	0.12	0.10	0.11
3/24	0.20	0.17	0.19	0.23	0.10	0.11
3/31	0.13	0.17	0.06	0.23	0.07	0.16
4/7	0.13	0.09	0.06	0.09	0.07	0.16
4/14	0.18	0.09	0.27	0.09	0.07	0.05
4/21	0.18	0.09	0.27	0.06	0.07	0.05
4/28		0.21	0.28	0.06	0.14	0.16
5/5		0.21	0.28	0.14	0.14	0.16
5/12	0.22	0.32	0.30	0.14	0.20	0.34
5/19	0.22	0.32	0.30	3.6	0.20	0.34
5/26	0.22	0.42	0.45	3.6	0.20	0.37
6/2	**	0.42	0.45	0.26	0.20	0.37
6/9	**	0.20	0.45	0.26	0.20	0.16
6/16	0.35	0.20	0.19	0.19	0.16	0.16
6/23	0.26	0.24	0.19	0.19	0.16	0.18
6/30	0.26	0.24	0.26	0.31	0.16	0.18

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

No entry indicates no analysis was made.

** Invalid data.

APPENDIX E

TABLE 2 (Part B Continued)

CONCENTRATIONS OF RADIOACTIVE BETA PARTICULATES IN THE AIR
OF THE HANFORD ENVIRONS - 1972

Approx. Wk. On Date	Moses Lake	<u>PERIMETER COMMUNITIES</u>				
		Washtucna	Walla Walla	McNary Dam	Ellensburg	Sunnyside
7/7	0.20	0.24	0.26	0.31	0.16	0.26
7/14	0.20	0.24	0.26	0.29	0.16	0.26
7/21		0.22	0.29	0.29	0.19	0.22
7/28		0.22	0.29	0.22	0.19	0.22
8/4	0.15	0.12	0.17	0.22	0.19	0.18
8/11	0.15	0.12	0.17	0.13	0.19	0.18
8/18	0.11	0.12	0.14	0.13	0.11	0.12
8/25	0.11	0.10	0.14	**	0.11	0.12
9/1	0.07	0.10	0.08	**	0.07	0.08
9/8	0.07	0.06	0.08	0.07	0.07	0.08
9/15	0.04	0.06	0.02	0.07	0.04	0.06
9/22	0.04		0.02	0.04	0.04	0.06
9/29	0.10		0.03	0.04	0.04	0.06
10/6	0.10		0.03	0.13	0.04	0.06
10/13	0.08		0.06	0.13	0.04	0.08
10/20	0.08		0.06	0.07	0.04	0.08
10/27	0.08		0.06	0.07	0.04	*
11/3	0.08		0.07	0.11	0.04	*
11/10	0.08		0.07	0.11	0.04	0.07
11/17	0.08		0.04	0.09	0.04	0.07
11/25	0.04		0.04	0.09	0.04	0.05
12/1	0.04		0.09	0.12	0.04	0.05
12/8	0.13		0.09	0.12	0.11	*
12/15	0.13		0.02	0.10	0.11	*
12/22	0.03		0.02	0.10	0.02	*
Annual Average	0.14	0.16	0.15	0.29	0.10	0.12

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

No entry indicates no analysis was made.

* Results were less than the analytical limit of $0.02 \times 10^{-12} \mu\text{Ci}/\text{ml}$.

** Invalid data.

APPENDIX E

TABLE 3 (Part A)

CONCENTRATIONS OF RADIOACTIVE ALPHA PARTICULATES IN THE AIR
OF THE HANFORD ENVIRONS - 1972

Approx. Wk. On Date	Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)					Berg Ranch
	Ringold	Byers Landing	Richland	Pasco	Othello	
12/29	0.003	0.001	0.001	0.001	0.001	0.004
1/5	0.002	0.001	0.001	0.001	0.002	0.003
1/12	0.002	0.002	0.002	0.002	0.002	0.003
1/19	0.003	0.002	0.002	0.002	0.003	0.003
1/26	0.003	0.005	0.005	*	0.003	0.003
2/2	0.002	0.005	0.005	*	0.002	0.003
2/9	0.002	0.002	0.002	0.002	0.002	0.003
2/16	0.002	0.002	0.002	0.002	*	0.002
2/23	0.002	0.002	0.002	0.001	*	0.002
3/1	0.001	0.002	0.002	0.001	0.001	0.002
3/8	0.001	0.001	0.002	0.001	0.001	0.002
3/15	0.002	0.001	0.002	0.001	0.002	0.002
3/22	0.002	0.002	0.002	0.002	0.002	0.002
3/29	0.002	0.002	0.002	0.002	0.001	*
4/5	0.002	0.001	0.002	0.002	0.001	*
4/12	0.001	0.001	0.002	0.002	0.001	*
4/19	0.001	0.001	0.002	0.002	0.001	*
4/26	0.001	0.001	0.002	0.002	0.002	0.002
5/3	0.001	0.002	0.002	0.001	0.002	0.002
5/10	0.003	0.002	0.002	0.001	0.003	0.004
5/17	0.003	0.001	0.001	0.002	0.003	0.004
5/24	*	0.001	0.001	0.002	0.002	0.002
5/31	*	0.002	0.002	0.002	0.002	0.002
6/7	*	0.002	0.002	0.002	*	*
6/14	*	*	0.001	0.001	*	*
6/21	*	*	0.001	0.001	0.001	*
6/28	*	*	0.001	*	0.001	*

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Indicates the result was less than the analytical limit of $0.001 \times 10^{-12} \mu\text{Ci}/\text{ml}$.

No entry indicates no analysis was made.

APPENDIX E

TABLE 3 (Part A Continued)

CONCENTRATIONS OF RADIOACTIVE ALPHA PARTICULATES IN THE AIR
OF THE HANFORD ENVIRONS - 1972Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)EASTERN QUADRANT

Approx. Wk. On Date	<u>Ringold</u>	<u>Byers Landing</u>	<u>Richland</u>	<u>Pasco</u>	<u>Othello</u>	<u>Berg Ranch</u>
7/5	0.002	*	0.001	*	*	0.001
7/12	0.002	0.001	0.001	0.001	*	0.001
7/19	0.002	0.001	0.001	0.001	0.001	0.001
7/26	0.002	0.001	0.002	0.002	0.001	0.001
8/2	0.002	0.001	0.002	0.002	0.002	0.001
8/9	0.002	*	0.001	*	0.002	0.001
8/16	0.001	*	0.001	*	0.001	0.001
8/23	0.001	0.002	0.001	0.002	0.001	0.001
8/30	0.002	0.002	0.001	0.002	0.002	0.002
9/6	0.002	0.001	0.001	0.002	0.002	0.002
9/13	0.002	0.001	0.001	0.002	0.002	0.001
9/20	0.002	0.002	0.002	0.002	0.002	0.001
9/27	0.002	0.002	0.002	0.002		0.002
10/4	0.002	0.002	0.002	0.002		0.002
10/11		0.002	0.002	0.002	*	0.003
10/18		0.001	0.002	0.002	*	0.003
10/25	0.002	0.001	0.002	0.002	0.002	0.002
11/1	0.002	0.002	0.002	0.002	0.002	0.002
11/8	0.003	0.002	0.002	0.002	0.003	0.002
11/15	0.003	0.002	0.003	0.004	0.003	0.002
11/22	0.002	0.002	0.003	0.004	0.003	0.002
11/29	0.002	0.002	0.002	0.002	0.004	0.002
12/6	0.006	0.002	0.002	0.002	0.006	0.006
12/13	0.006	0.006	0.004	0.005	0.006	0.006
12/19	*	0.006	0.004	0.005	0.001	*
Annual Average	0.002	0.002	0.002	0.002	0.002	0.002

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Indicates the result was less than the analytical limit of $0.001 \times 10^{-12} \mu\text{Ci}/\text{ml}$.

No entry indicates no analysis was made.

APPENDIX E

TABLE 3 (Part B)

CONCENTRATIONS OF RADIOACTIVE ALPHA PARTICULATES IN THE AIR
OF THE HANFORD ENVIRONS - 1972Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)PERIMETER COMMUNITIES

Approx. Wk. On <u>Date</u>	<u>Walla Walla</u>	McNary Dam	Approx. Wk. On <u>Date</u>	<u>Walla Walla</u>	McNary Dam
12/31	0.001	0.001	7/7	*	0.001
1/7	0.001	0.001	7/14	*	0.002
1/14	0.002	0.001	7/21	*	0.002
1/21	0.002	0.001	7/28	*	0.001
1/28		0.005	8/4	0.001	0.001
2/4		0.005	8/11	0.001	0.001
2/11		0.001	8/18	0.002	0.001
2/18	*	0.001	8/25	0.002	**
2/25	*	0.002	9/1	0.001	**
3/3	*	0.002	9/8	0.001	0.001
3/10	*	0.002	9/15	*	0.001
3/17	*	0.002	9/22	*	0.001
3/24	0.003	0.001	9/29	0.001	0.001
3/31	*	0.001	10/6	0.001	0.003
4/7	*	0.002	10/13	*	0.003
4/14		0.002	10/20	*	
4/21		0.002	10/27	*	
4/28	0.002	0.002	11/3	0.001	0.002
5/5	0.002	0.002	11/10	0.001	0.002
5/12	0.002	0.002	11/17	0.001	0.003
5/19	0.002	0.002	11/24	0.001	0.003
5/26	0.001	0.002	12/1	0.004	0.006
6/2	0.001	*	12/8	0.004	0.006
6/9	0.001	*	12/15	*	0.002
6/16	*	0.001	12/22	*	0.002
6/23	*	0.001	Annual Average	0.001	0.002

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

* Indicates the result was less than the analytical limit of $0.001 \times 10^{-12} \mu\text{Ci}/\text{ml}$.

** Invalid data.

No entry indicates no analysis was made.

APPENDIX E

TABLE 4
CONCENTRATIONS OF GAMMA-EMITTING RADIONUCLIDES ON SELECTED AIR FILTER COMPOSITES - 1972

Date	<u>60</u> _{Co}	<u>90</u> _{Sr}	<u>95</u> _{ZrNb}	Units of 10^{-12} $\mu\text{Ci}/\text{ml}$ of Air (Continuous Samples)	<u>103</u> _{Ru}	<u>106</u> _{Ru}	<u>134</u> _{Cs}	<u>137</u> _{Cs-137m} _{Ba}	<u>140</u> _{BaLa}	<u>141</u> _{Ce}	<u>144</u> _{CePr}	Total Pu
<u>Inner Northeast Quadrant</u>												
1/21	*	0.002	0.004	*	0.14	*	*	*	*	*	*	*
2/18	0.01	*	0.004	*	0.28	*	*	*	*	*	0.03	0.02
3/31	*	*	0.004	*	0.19	*	0.003	*	*	*	*	0.00009
4/28	*	*	0.04	*	0.29	*	*	*	*	*	0.08	0.02
5/26	*	*	0.16	0.03	0.03	*	*	*	*	0.03	*	0.00002
6/23	*	*	0.10	*	0.41	*	0.005	*	*	*	0.13	0.00002
7/21	0.01	*	0.06	*	0.50	*	*	*	*	*	0.08	0.00002
8/31	*	*	0.04	*	0.39	*	0.002	*	*	*	0.06	0.00003
9/29	*	0.002	0.01	*	0.25	*	0.002	*	*	*	0.02	0.00003
10/27	*	*	0.002	*	0.21	*	*	*	*	*	*	*
11/28	0.002	*	*	*	0.11	*	*	*	*	*	*	0.00005
12/22	*	*	*	*	0.12	*	*	*	*	*	*	0.00002
Annual Average	0.002	*0.0008	0.04	0.002	0.24	*	*0.0007	*	0.003	0.04	0.00005	0.00002
<u>Inner Southeast Quadrant</u>												
1/28	*	0.003	0.004	*	0.15	*	*	*	*	*	*	*
2/25	0.003	*	0.003	*	0.19	*	*	*	*	*	*	*
3/29	*	*	0.003	*	0.15	*	0.002	*	*	*	0.02	*
4/26	0.01	*	0.01	*	0.35	*	*	*	*	*	0.04	*
5/30	*	*	0.001	0.09	0.02	0.03	*	*	*	*	0.008	0.09
6/30	*	*	0.001	0.10	*	0.54	*	0.004	*	*	0.11	0.00001
7/28	0.01	*	0.07	*	0.65	*	*	*	*	*	0.10	*
8/30	*	*	0.04	*	0.39	*	0.002	*	*	*	0.08	0.00006
9/27	*	0.002	0.01	*	0.32	*	0.005	*	*	*	0.05	*
10/30	*	*	0.001	*	0.20	*	0.003	*	*	*	*	*
11/27	*	*	*	*	0.09	*	*	*	*	*	*	*
12/29	*	0.0002	*	*	0.10	*	*	*	*	*	*	0.00006
Annual Average	0.003	0.001	0.03	0.002	0.26	*0.0009	*0.001	*	*0.0007	0.04	0.00002	0.00002

* Indicates the results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX E

TABLE 4 (Continued)
CONCENTRATIONS OF GAMMA-EMITTING RADIONUCLIDES ON SELECTED AIR FILTER COMPOSITES - 1972

Date	<u>60</u> _{Co}	<u>90</u> _{Sr}	<u>95</u> _{ZrNb}	Units of 10 ⁻¹² μ Ci/ml of Air (Continuous Samples)	<u>103</u> _{Ru}	<u>106</u> _{Ru}	<u>134</u> _{Cs}	<u>137</u> _{Cs} - <u>137</u> _m <u>Ba</u>	<u>140</u> _{BaLa}	<u>141</u> _{Ce}	<u>144</u> _{CePr}	Total Pu
<u>Outer Western Quadrant</u>												
1/31	*		0.003	*	0.11	*	*	*	*	*	*	*
2/28	*	*	0.004	*	0.11	*	*	*	*	*	*	0.000005
3/29	*	*	0.004	*	0.13	*	*	*	*	*	*	*
4/10	*	*	0.006	0.02	0.26	*	*	*	*	0.02	*	*
5/22	*	0.001	0.007	*	0.37	*	*	*	*	*	0.10	0.00001
6/19	*		0.001	0.05	0.37	*	*	*	*	*	0.08	0.08
7/21	*			*	0.39	*	0.04	*	*	*	0.08	0.08
8/28	*		0.002	0.01	0.36	*	*	*	*	*	0.08	0.00003
9/15	*			*	0.14	*	*	*	*	*	*	*
10/24	*			*	0.07	*	*	*	*	*	*	*
11/22	0.004		0.0004	*	0.07	*	*	*	*	*	*	0.00006
12/22	*0.001	0.001	0.02	*0.001	0.20	*	*0.0007	*	*0.001	*0.04	0.00003	
Annual Average												
<u>Outer Southeast Quadrant</u>												
1/28	0.003		0.01	*	0.20	*	*	*	*	0.04	*	*
2/25	0.02	*	0.005	*	0.30	*	*	0.005	*	*	*	0.000009
3/20	*	*	0.005	*	0.12	*	*	*	*	*	*	*
4/21	*		0.003	*	0.18	*	*	*	*	*	0.16	0.00003
5/26	*		0.008	0.02	*	*	*	*	*	*	0.14	0.10
6/30	*	*	0.12	*	0.42	*	*	*	*	*	0.07	0.07
7/28	*		0.06	*	0.60	*	*	*	*	*	0.25	0.12
8/25	*		0.03	*	0.46	*	*	*	*	*	*	*
9/22	*	0.002	0.007	*	0.22	0.02	0.009	*	*	*	*	*
10/20	*		*	*	0.12	*	*	*	*	*	*	*
11/17	0.004	*	*	*	0.16	*	*	*	0.14	*	*	0.000006
12/29	*	0.001	*	*	0.09	*	*	*	0.03	*	0.06	0.00002
Annual Average	0.002	*0.0008	0.03	*0.001	0.24	*0.003	*0.001					

* Indicates the results were less than the analytical limit.

No entry indicates no analysis was made.

APPENDIX E

TABLE 4 (Continued)
 CONCENTRATIONS OF GAMMA-EMITTING RADIONUCLIDES ON SELECTED AIR FILTER COMPOSITES - 1972

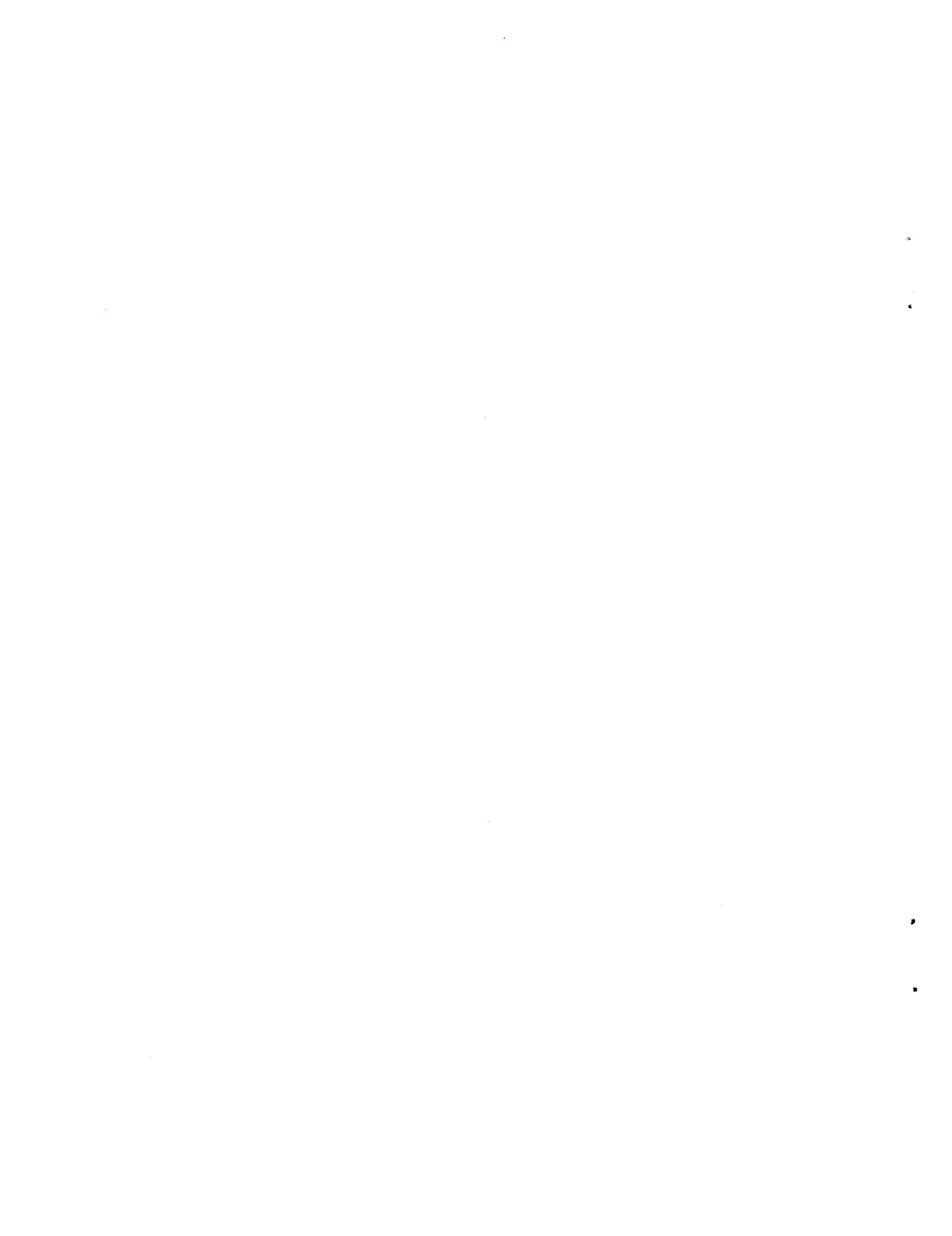
Date	<u>60</u> _{Co}	<u>65</u> _{Zn}	<u>90</u> _{Sr}	<u>95</u> _{ZrNb}	<u>103</u> _{Ru}	<u>106</u> _{Ru}	<u>134</u> _{Cs}	<u>137</u> _{Cs} - <u>137m</u> _{Ba}	<u>140</u> _{BaLa}	<u>141</u> _{Ce}	<u>144</u> _{CePr}	Total Pu
Outer Northeast Quadrant												
1/28	*	*	*	0.005	*	0.12	*	*	*	*	*	*
2/25	*	*	*	*	*	0.17	*	*	*	*	*	*
3/24	*	*	*	0.02	*	0.15	*	*	*	*	*	0.000004
4/14	*	*	*	0.05	0.02	0.04	*	*	*	0.02	*	*
5/30	*	*	0.001	0.10	*	0.47	*	*	*	*	*	0.00002
6/20	*	*	*	0.06	*	0.39	*	*	*	*	*	0.18
7/21	*	*	*	0.03	*	0.34	*	*	*	*	*	0.10
8/24	*	*	0.001	0.01	*	*	0.34	*	*	*	*	0.07
9/21	*	*	*	0.004	*	0.20	*	*	0.004	0.27	*	0.07
10/27	*	*	*	0.004	*	0.12	*	*	*	*	*	*
11/22	0.03	*	*	*	*	*	*	*	0.007	1.2	*	*
12/22	*	0.04	0.0008	*	*	*	*	*	*	0.14	*0.002	0.05
Annual Average	*	*0.00008	0.001	0.02	0.002	0.17	*	*	0.0001	0.0002	0.0002	0.0002

* Indicates the results were less than the analytical limit.
 No entry indicates no analysis was made.

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BNWL-1727 ADD

APPENDIX F



APPENDIX F

TABLE 1
CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972

Date	<u>40</u> _K	<u>65</u> _{Zn}	<u>89</u> _{Sr}	<u>90</u> _{Sr}	<u>131</u> _I	<u>137</u> _{Cs} - <u>137</u> ^m _{Ba}
Analy.	400	50	2	2	2	30
Limit						
Riverview Irrigation District-Farm #1						
1/10	1200	*			*	*
1/24	1100	*	*	*	*	*
2/7	1000	*			*	*
2/22	1300	*			*	*
3/9	1200	*			*	*
3/20	1300	*			*	*
4/3	1300	*			*	*
4/17	1300	*	*	2.3	*	*
5/1	960	*			*	*
5/15	1100	*			*	*
5/30	1200	*			*	*
6/12	1300	*			*	*
6/26	1100	*			*	*
7/10	740	*	*	4.4	*	*
7/24	1000	*			*	*
8/7	1500	*			*	*
8/21	860	*			*	*
9/5	940	*			*	*
9/18	1200	*			*	*
10/2	1500	*	2.1	2.8	*	31.
10/16	1900	92.			*	49.
10/30	1100	*			*	*
11/13	1300	*			*	*
11/27	900	*			*	*
12/11	940	*			*	*
12/21	1000	*			*	*
Annual Average	1100	16.	*0.8	2.6	0.96	14.

* Indicates the results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX F

TABLE 1 (Continued)
CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972
 Units of 10^{-9} $\mu\text{Ci}/\text{ml}$ of Milk

Date	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy. Limit	400	50	2	2	30
<u>Columbia River Composite #2</u>					
1/13	1200	*		*	*
1/27	1200	*		*	*
2/10	1200	*	2.1	*	*
2/14	1200	*		*	*
3/9	1400	*		*	*
3/23	1400	67.		*	*
4/6	1000	*		5.4	*
4/20	1300	*		*	*
5/4	1200	*	2.3	*	*
5/18	1200	*		*	*
6/1	1200	*		*	*
6/15	1200	*		*	*
6/29	1400	*		*	*
7/13	1000	*		*	*
7/27	1100	*		*	*
8/10	1400	*	*	*	*
8/24	1100	*		*	*
9/7	1200	*		*	*
9/21	1300	*			*
10/5	1000	*		*	*
10/19	1400	*		*	33.
11/2	890	*	*	*	*
11/16	1000	*		*	*
11/30	1100	*		*	*
12/14	1100	*		*	*
12/28	1000	*		*	*
Annual Average	1200	*9.4	1.6	1.1	11.

* Indicates the results were less than the analytical limit.
 No entry indicates no analysis was made.

APPENDIX F

TABLE 1 (Continued)
CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972

Units of $10^{-9} \mu\text{Ci/ml}$ of Milk

Date	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy.	400	50	2	30
Limit				
<u>Columbia Basin Composite #3</u>				
1/6	1200	*	*	*
1/20	1200	*	*	*
2/3	1300	*	*	*
2/17	1100	*	*	*
3/2	1400	*	*	*
3/16	1400	*	*	*
3/30	1200	*	*	*
4/13	*	*	*	*
4/27	1000	*	*	*
5/11	1100	*	*	*
5/25	1000	*	*	*
6/8	1200	*	*	*
6/22	1100	*	*	*
7/6	1000	*	*	*
7/20	1100	*	*	*
8/3	1600	*	*	*
8/17	1300	*	*	*
8/31	1200	*	*	*
9/14	1300	*	*	33.
9/28	1400	*	*	*
10/12	1300	*	*	32.
10/26	1200	*	*	*
11/9	1200	*	*	*
11/27	1100	*	*	*
12/7	1300	*	*	*
12/21	1400	*	*	*
Annual Average	1200	*8.2	0.9	12.

* Indicates the results were less than the analytical limit.

APPENDIX F

TABLE 1 (Continued)
CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972
 Units of $10^{-9} \mu\text{Ci/ml}$ in Milk

<u>Date</u>	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy. Limit	400	50	2	2	30
Benton City-Farm #2					
1/6	1400	*		2.0	*
1/20	910	*		2.1	*
2/3	1300	*		*	*
2/17	1000	*		*	*
3/2	1500	*	3.9	*	*
3/16	1300	*		*	*
3/30	1100	*		3.5	*
4/13	1200	*		5.4	*
4/27	1000	*		*	*
5/11	990	*		*	*
5/25	1100	*		*	*
6/8	1200	*	2.6	*	*
6/22	1100	*		*	*
7/6	980	*		*	*
7/20	1100	*		*	*
8/3	1400	*		*	*
8/17	940	*		*	*
8/31	1100	*	*	*	*
9/14	1200	*		*	*
9/28	1400	*		*	*
10/12	1300	41.		*	*
10/26	980	*		*	*
11/9	1100	*		*	*
11/27	880	*		*	*
12/7	1000	*	*	*	*
12/21	1100	*		*	*
Annual Average	1100	15.	2.3	1.1	9.0

* Indicates the results were less than the analytical limit.
 No entry indicates no analysis was made.

APPENDIX F

TABLE 1 (Continued)
CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972
 Units of $10^{-9} \mu\text{Ci/ml}$ of Milk

<u>Date</u>	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy.	400	50	2	30
Limit				
<u>West Richland-Benton City Composite</u>				
1/13	1000	*	*	*
1/27	1300	*	*	*
2/10	1100	*	*	*
2/24	1000	*	*	*
3/9	1200	*	*	*
3/23	1300	*	*	*
4/6	1000	*	3.7	*
4/20	1000	*	*	*
5/4	850	*	*	*
5/18	1100	*	*	*
6/1	1000	*	*	*
6/15	1100	*	*	*
6/29	600	*	*	*
7/13	550	*	*	*
7/27	880	*	*	*
8/10	1200	*	*	*
8/24	950	*	*	*
9/7	1100	*	*	*
9/21	1100	*	*	*
10/5	980	*	*	*
10/19	1300	*	*	*
11/2	900	*	*	*
11/16	700	*	*	*
11/30	870	*	*	*
12/14	940	*	*	*
12/28	550	*	*	*
Annual Average	1000	*12.	1.1	9.4

*Indicates the results were less than the analytical limit.

APPENDIX F

TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972Units of 10^{-9} $\mu\text{Ci}/\text{ml}$ of Milk

<u>Date</u>	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy. Limit	400	50	2	2	30
<u>Brand H</u>					
1/6	1300	*		*	*
2/3	1100	*	4.0	*	*
3/2	1700	*		*	*
4/13	1100	*		*	*
5/11	980	*	6.4	*	*
6/8	990	*		*	*
7/6	1100	*		*	30.
8/3	1600	*	7.1	*	*
9/14	1500	*		*	*
10/12	1500	52.		*	35.
11/9	1100	*	*	*	*
12/7	1100	*		*	*
Annual Average	1200	*14.	4.6	0.8	16.

* Indicates the results were less than the analytical limit.
 No entry indicates no analysis was made.

APPENDIX F

TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1972

<u>Date</u>	Units of 10^{-9} $\mu\text{Ci}/\text{ml}$ of Milk				
	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>^{131}I</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy. Limit	400	50	2	2	30
<u>Commercial Composite</u>					
1/6			*		
1/20			*		
2/3			*		
2/17			*		
3/2	1400	62.	3.7	*	*
3/16	1400	*		*	*
3/30	1300	*		*	*
4/13	1000	*		*	*
4/27	1200	*		*	*
5/11	1200	*		*	*
5/25	1000	*		*	*
6/8	900	*	2.8	*	*
6/22	1200	*		*	*
7/6	980			*	*
7/20	1200	*		*	*
8/3	1300	*		*	*
8/17	1200	*		*	35.
8/31	1100	*	*	*	*
9/14	1700	*		*	*
9/28	1400	*		*	*
10/12	1500	*		*	*
11/9	1200	*		*	*
11/27	920	*		*	*
12/7	870	*	*	*	*
12/21	1100	*		*	*
Annual Average	1200	19.	2.4	0.7	15.

* Indicates the results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX F

TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN LOCALLY PURCHASED MEAT - 1972

Units of 10^{-6} $\mu\text{Ci/gm}$ of Meat (wet weight)

<u>Date</u>	<u>Type</u>	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>$^{137}\text{Cs}-^{137}\text{m Ba}$</u>
Analy. Limit		0.27	0.03	0.002	0.02
<u>Commercial</u>					
1/20	Beef	2.8	*	*	0.08
2/24	Beef	1.5	*	*	*
3/23	Beef	2.3	*	0.006	0.04
4/20	Beef	2.4	*	*	0.03
5/25	Beef	2.3	*	*	0.03
6/22	Beef	2.6	*	*	0.04
7/20	Beef	2.1	*	*	*
8/24	Beef	2.2	*	*	0.03
9/21	Beef	2.6	*	*	0.05
10/26	Beef	2.5	0.06	*	0.06
11/27	Beef	2.1	*	*	*
12/21	Beef	2.3	*	*	*
Annual Average		2.3	0.02	0.001	0.03

* Indicates the results were less than the analytical limit.

APPENDIX F

TABLE 3
CONCENTRATIONS OF RADIONUCLIDES IN LOCALLY PURCHASED
LEAFY VEGETABLES - 1972

<u>Date</u>	<u>Produce</u>	Units of 10^{-6} $\mu\text{Ci}/\text{gm}$ (wet weight)						$\frac{^{144}\text{CePr}}{^{137}\text{Ba}}$ 0.35
		$\frac{^{40}\text{K}}{^{65}\text{Zn}}$	$\frac{^{89}\text{Sr}}{^{90}\text{Sr}}$	$\frac{^{95}\text{ZrNb}}{^{106}\text{Ru}}$	$\frac{^{131}\text{I}}{^{137}\text{Cs-137m}}$	$\frac{^{137}\text{Cs-137m}}{^{106}\text{Ru}}$	$\frac{^{137}\text{Cs-137m}}{^{131}\text{I}}$	
<u>Riverview Farm</u>								
6/9	Composite	2.7	*	0.03	0.14	*	*	0.09
6/22	Composite	4.5	*	0.11	*	*	*	*
7/13	Composite	3.5	*	0.04	*	*	*	*
Annual	Average	3.6	*	0.10	*	*0.002	0.04	*0.03
<u>Commercial</u>								
5/25	Composite	2.6	*	0.009	0.008	0.12	*	*
7/27	Composite	2.4	*	*	*	*	*	*
8/24	Composite	5.0	*	*	*	1.0	*	*
9/21	Composite	4.2	*	0.004	0.01	*	*	*
10/26	Composite	5.6	*	*	*	*	*	*
Annual	Average	4.0	*	0.006	0.009	0.03	0.38	*0.02
							0.03	*0.08

* Indicates the results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX F

TABLE 4

CONCENTRATIONS OF RADIONUCLIDES IN CHICKEN AND EGGS
FROM LOCAL FARMS - 1972

<u>Date</u>	Units of 10^{-6} $\mu\text{Ci}/\text{gm}$ (wet weight)				
	<u>^{32}P</u>	<u>^{40}K</u>	<u>^{65}Zn</u>	<u>^{90}Sr</u>	<u>$^{137}\text{Cs}-^{137m}\text{Ba}$</u>
Analy. Limit	1.0	0.27	0.045	0.002	0.03
<u>CHICKEN</u>					
<u>Riverview</u>					
12/15	2.0	*	*	*	
<u>Ringold</u>					
3/9	2.2	0.13	0.003	*	
7/13	2.4	0.06	0.004	*	
10/5	*	2.8	0.09	0.04	
Annual Average	2.5	0.09	0.004	0.02	
<u>EGGS</u>					
<u>Riverview</u>					
2/10	0.82	*	0.012	*	
12/14	0.90	*		*	
Annual Average	0.86	*0.011		0.001	
<u>Ringold</u>					
3/9	1.3	0.09		*	
4/6	0.74	*		*	
5/4	0.90	*		*	
6/1	0.83	*	0.002	*	
7/13	0.83	*		*	
8/10	1.1	*	0.03	*	
9/7	1.0	*		*	
10/5	1.4	0.09		0.04	
Annual Average	1.0	0.04	0.014	0.01	

* Indicates the results were less than the analytical limit.
No entry indicates no analysis was made.

APPENDIX G



APPENDIX G

TABLE 1
CONCENTRATIONS OF RADIONUCLIDES IN PERIMETER SOIL SAMPLES - 1972

Location	^{40}K	Units of $10^{-6} \mu\text{Ci/gm}$ of Soil										$^{239+240}\text{Pu}$
		^{58}Co	^{60}Co	^{65}Zn	^{90}Sr	$^{95}\text{ZrNb}$	$^{106}\text{RuRh}$	^{134}Cs	^{137}Cs	$^{144}\text{CePr}$	^{224}Ra	
Analy. Limit	0.5	0.03	0.03	0.07	0.002	0.2	0.4	0.03	0.03	0.3	0.04	0.003
Benton City	14.	*	0.03	*	0.38	0.27	*	*	1.1	1.3	1.6	0.61
ERC	16.	*	0.07	0.18	0.10	*	1.5	*	0.04	0.68	2.7	0.69
Rt. 240, CP #54	14.	*	0.04	*	0.20	*	0.81	0.04	0.51	1.2	1.9	0.84
Rattlesnake Spr.	12.	*	0.10	*	0.01	*	0.55	*	1.5	1.4	1.9	1.3
Yakima Barricade	13.	*	*	*	0.12	0.24	*	*	0.26	0.52	1.6	0.72
Vernita Bridge	16.	*	*	0.10	0.10	0.25	0.57	*	0.26	0.73	0.93	0.35
Wahluke Slope #2	12.	*	0.04	*	0.30	*	0.48	*	0.72	1.1	1.3	0.39
Berg Ranch	12.	*	*	*	0.20	0.25	*	*	0.23	1.1	1.4	0.57
Ringold	16.	0.11	*	*	0.12	0.54	1.3	*	0.40	0.92	1.8	0.48
Byers Pumphouse	20.	*	*	*	0.08	1.2	*	0.04	0.42	1.8	1.4	0.78
Byers Landing	18.	*	*	*	0.13	0.34	*	0.05	0.84	1.5	2.6	0.56
Riverview	14.	*	0.15	*	0.23	*	0.84	0.05	0.55	0.66	1.4	0.28
North Richland	16.	*	*	*	0.32	0.23	2.2	*	0.75	*	1.3	0.52
Maximum	20.	0.11	0.15	0.18	0.38	1.2	2.2	0.05	1.5	2.7	1.3	0.012
Minimum	12.	*	*	*	0.01	*	*	*	0.04	0.52	0.93	0.28
Average	15.	0.01	0.04	0.03	0.18	0.28	0.64	0.01	0.58	0.99	1.7	0.62
											0.003	0.008

* Results were less than the analytical limit.

APPENDIX G

TABLE 2
CONCENTRATIONS OF RADIONUCLIDES IN PERIMETER VEGETATION SAMPLES - 1972

Location	Units of 10^{-6} $\mu\text{Ci/gm}$ of Vegetation						Total U
	^{40}K	^{60}Co	^{90}Sr	$^{95}\text{ZrNb}$	^{106}Ru	^{137}Cs	
Analy. Limit	0.3	0.04	0.002	0.01	0.4	0.02	0.4
Benton City	5.2	*	0.08	0.96	5.2	0.73	1.2
ERC	2.7	*	0.11	2.1	5.7	1.9	4.4
Rt. 240, CP #54	3.8	*	0.12	1.5	5.2	2.7	*
Rattlesnake Spr.	9.7	*	0.02	1.0	2.9	0.97	1.2
Yakima Barricade	10.	*	0.07	1.1	4.6	1.7	*
Vernita Bridge	7.1	*	0.11	2.0	3.8	5.8	*
Wahluke Slope #2	9.8	*	0.06	0.66	5.7	0.71	*
Berg Ranch	11.	0.09	0.10	1.4	1.9	1.2	*
Ringold	4.2	0.04	0.05	0.59	2.4	0.56	*
Byers Pumphouse	11.	*	0.05	0.84	2.5	3.8	*
Byers Landing	21.	*	0.07	0.34	2.1	1.0	*
Riverview	15.	*	0.85	0.14	*	0.24	*
North Richland	7.9	*	0.04	0.70	2.4	0.79	0.82
Maximum	21.	0.09	0.85	2.1	5.7	5.8	4.4
Minimum	2.7	*	0.02	0.14	*	0.24	*
Average	9.1	0.02	0.13	1.0	3.5	1.7	0.31
							0.003
							0.004

* Results were less than the analytical limit.

APPENDIX H



APPENDIX H

TABLE 1
IONIZATION CHAMBER MEASUREMENTS FOR THE
HANFORD RESERVATION AND RICHLAND - 1972

Units of mR/day

<u>Date</u>	<u>Richland</u>	<u>Hanford</u>
12/30-1/3	0.41	0.45
1/3-1/7	0.36	0.39
1/7-1/10	0.44	0.42
1/10-1/14	0.57	0.39
1/14-1/17	0.46	0.52
1/17-1/21	0.30	0.32
1/21-1/24	0.44	0.37
1/24-1/28		0.22
1/28-1/31	0.46	
1/31-2/4	0.49	0.42
2/4-2/7	0.51	0.49
2/7-2/11	0.43	0.38
2/11-2/14	0.36	0.44
2/14-2/18	0.43	0.37
2/18-2/22	0.39	0.41
2/22-2/25	0.40	0.35
2/25-2/28	0.71	0.52
2/28-3/3	0.48	0.60
3/3-3/6	0.41	0.42
3/6-3/10	0.34	0.44
3/10-3/13	0.38	0.40
3/13-3/17	0.34	0.43
3/17-3/20	0.42	0.45
3/20-3/24	0.34	0.41
3/24-3/27	0.40	0.45
3/27-3/31	0.33	0.40
3/31-4/3	0.34	0.53
4/3-4/7	0.40	0.44
4/7-4/10	0.52	0.43
4/10-4/14	0.37	0.39
4/14-4/17	0.45	0.35
4/17-4/21	0.34	0.41
4/21-4/24	0.35	0.42
4/24-4/28		
4/28-5/1	0.36	0.38
5/1-5/8	0.15	0.14
5/8-5/12	0.25	0.32

No entry indicates no analysis was made.

APPENDIX H

TABLE 1 (Continued)

IONIZATION CHAMBER MEASUREMENTS FOR THE
HANFORD RESERVATION AND RICHLAND - 1972

Units of mR/day

<u>Date</u>	<u>Richland</u>	<u>Hanford</u>
5/12-5/15	0.31	0.34
5/15-5/19	0.28	0.32
5/19-5/22	0.44	0.38
5/22-5/26	0.26	0.32
5/26-5/30	0.30	0.35
5/30-6/2	0.25	0.30
6/2-6/5	0.32	0.34
6/5-6/9	0.28	0.34
6/9-6/12	0.34	0.34
6/12-6/16	0.27	0.32
6/16-6/19	0.31	0.34
6/19-6/23	0.31	0.36
6/23-6/26	0.33	0.38
6/26-6/30	0.29	0.37
6/30-7/3	0.33	0.39
7/3-8/1		
8/1-8/4	0.33	
8/4-8/7	0.37	0.44
8/7-8/11	0.34	0.39
8/11-8/14	0.41	0.40
8/14-8/18	0.34	0.41
8/18-8/22	0.44	0.40
8/22-8/25	0.33	0.40
8/25-8/28	0.43	0.45
8/28-9/1	0.35	0.31
9/1-9/5	0.42	0.38
9/5-9/8	0.48	0.42
9/8-9/11	0.38	0.37
9/11-9/15	0.37	0.46
9/15-9/18	0.36	0.37
9/18-9/22	0.36	0.42
9/22-9/25	0.43	0.41
9/25-9/29	0.38	0.47
9/29-10/2	0.44	0.47
10/2-10/6	0.36	0.48
10/6-10/9	0.42	0.47
10/9-10/13	0.32	0.39
10/13-10/16	0.37	0.42

No entry indicates no analysis was made.

APPENDIX H

TABLE 1 (Continued)

IONIZATION CHAMBER MEASUREMENTS FOR THE
HANFORD RESERVATION AND RICHLAND - 1972

Units of mR/day

<u>Date</u>	<u>Richland</u>	<u>Hanford</u>
10/16-10/20	0.39	0.49
10/20-10/23	0.31	0.41
10/23-10/27	0.27	0.36
10/27-10/30	0.37	0.39
10/30-11/3	0.33	0.44
11/3-11/6	0.42	0.45
11/6-11/10		
11/10-11/13	0.43	0.47
11/13-11/17	0.42	0.51
11/17-11/20	0.48	0.50
11/20-11/22	0.44	0.55
11/22-11/27	0.41	0.44
11/27-12/1	0.34	0.48
12/1-12/4	0.51	0.43
12/4-12/8	0.42	0.26
12/8-12/11	0.50	0.26
12/11-12/15	0.45	0.56
12/15-12/18	0.50	0.53
12/18-12/21	0.47	0.44
12/21-12/29	0.34	0.31
12/29-1/2	0.39	0.44
Annual Average	0.38	0.40

No entry indicates no analysis was made.

APPENDIX H

TABLE 2
TLD MEASUREMENTS IN THE COLUMBIA RIVER - 1972
 Units of mR/day

<u>Measurement Period</u>	<u>Exposure Rate</u>	<u>Measurement Period</u>	<u>Exposure Rate</u>
<u>Above 100-N</u>		8/18-9/25	0.19
11/14-1/20	0.16	9/25-10/20	0.22
1/20-2/23	0.11	10/20-11/16	0.16
2/23-3/16	0.21	11/16-12/19	0.15
3/16-7/24	0.13	Annual Average	0.16
7/24-8/18	0.24		
<u>Below 100-N</u>			
3/15-4/26	0.15	9/25-10/20	0.20
5/23-7/24	0.19	10/20-11/16	0.16
7/24-8/18	0.14	11/16-12/19	0.19
8/18-9/25	0.21	Annual Average	0.18
<u>Above 100-D</u>			
3/15-4/26	0.17	8/18-9/25	0.13
4/26-5/23	0.20	9/25-10/20	0.14
5/23-7/24	0.08	10/20-11/16	0.34
7/24-8/18	0.12	11/16-12/19	0.23
		Annual Average	0.17
<u>D-Island</u>			
11/18-1/20	0.14	7/24-8/18	0.18
1/20-2/23	0.19	8/18-9/25	0.28
2/23-3/16	0.22	9/25-10/20	0.33
3/16-4/26	0.26	10/20-11/16	0.11
4/26-7/24	0.16	11/16-12/19	0.11
		Annual Average	0.19
<u>100-F</u>			
2/23-3/16	0.33	8/18-9/25	0.20
3/16-4/26	0.26	9/25-10/20	0.18
4/26-5/23	0.30	10/20-11/16	0.17
5/23-7/24	0.11	11/16-12/19	0.17
7/24-8/18	0.18	Annual Average	0.20

APPENDIX H

TABLE 2 (Continued)
TLD MEASUREMENTS IN THE COLUMBIA RIVER - 1972
Units of mR/day

<u>Measurement Period</u>	<u>Exposure Rate</u>	<u>Measurement Period</u>	<u>Exposure Rate</u>
<u>Hanford Powerline</u>			
9/25-10/6	0.22		
10/20-11/16	0.26		
11/16-12/19	0.33		
Annual Average	0.29		
<u>South of Wooded Island</u>			
12/8-1/12	0.12	8/23-9/20	0.20
1/12-2/9	0.13	9/20-10/18	0.18
2/9-3/9	0.19	11/15-12/13	0.20
3/9-4/5	0.19	Annual Average	
4/5-5/8	0.23	0.19	
<u>Richland</u>			
12/27-1/24	0.14	7/10-8/7	0.13
1/24-2/22	0.13	8/7-9/5	0.12
2/22-3/20	0.17	9/5-10/2	0.15
3/20-4/17	0.15	10/2-10/30	0.15
4/17-5/15	0.15	10/30-11/27	0.11
5/15-6/12	0.14	11/27-12/21	0.16
6/12-7/10	0.12	Annual Average	
		0.14	

APPENDIX H

TABLE 3

EXTERNAL EXPOSURE RATE MEASUREMENT AT 3 FEET ABOVE THE
COLUMBIA RIVER SHORELINE AT VERNITA,
RICHLAND AND SACAJAWEA PARK - 1972

Units of mR/day			
<u>Date</u>	<u>Exposure Rate</u>	<u>Date</u>	<u>Exposure Rate</u>
<u>Vernita</u>			
1/3	0.19	7/11	0.17
1/31	0.14	7/17	0.24
2/8	0.31	8/14	0.19
2/28	0.24	9/5	0.17
3/27	0.22	9/11	0.24
4/4	0.36	9/12	0.31
4/24	0.22	9/19	0.31
6/5	0.43	9/26	0.31
6/16	0.36	11/14	0.29
Annual Avg.			0.24
<u>Sacajawea</u>			
1/7	0.19	6/16	0.31
1/14	0.24	6/30	0.36
1/28	0.19	7/28	0.31
2/11	0.31	8/11	0.19
2/25	0.26	9/8	0.29
3/10	0.29	9/22	0.29
3/24	0.29	10/6	0.26
4/7	0.12	10/20	0.31
4/21	0.24	11/17	0.29
5/5	0.24	12/1	0.17
5/19	0.29	12/29	0.29
6/2	0.29	Annual Avg.	
		0.26	

APPENDIX H

TABLE 3 (Continued)

EXTERNAL EXPOSURE RATE MEASUREMENT AT 3 FEET ABOVE THE
COLUMBIA RIVER SHORELINE AT VERNITA,
RICHLAND AND SACAJAWEA PARK - 1972

Units of mR/day			
<u>Date</u>	<u>Exposure Rate</u>	<u>Date</u>	<u>Exposure Rate</u>
<u>Richland</u>			
1/6	0.26	7/20	0.10
1/13	0.24	7/27	0.14
1/20	0.19	8/3	0.26
1/27	0.22	8/10	0.31
2/3	0.19	8/17	0.36
2/10	0.22	8/25	0.60
2/17	0.19	8/29	0.31
2/24	0.29	8/31	0.22
3/2	0.17	9/7	0.29
3/9	0.19	9/14	0.34
3/23	0.31	9/21	0.31
3/30	0.19	10/5	0.17
4/6	0.24	10/12	0.19
4/13	0.22	10/19	0.17
4/20	0.26	10/26	0.19
4/27	0.26	11/2	0.17
5/4	0.26	11/9	0.26
5/11	0.31	11/16	0.17
5/18	0.43	11/30	0.29
5/25	0.19	12/7	0.14
6/1	0.19	12/14	0.31
6/15	0.31	12/21	0.19
6/29	0.19	12/28	0.19
7/6	0.26	Annual Avg. 0.24	
7/13	0.26		

APPENDIX H

TABLE 4 PART A
TLD MEASUREMENTS AT 3 FEET ABOVE THE GROUND - 1972
 Units of mR/day

<u>EASTERN QUADRANT</u>									
<u>Approx. Wk.</u>	<u>On Date</u>	<u>Ringold</u>	<u>Byers Landing</u>	<u>Richland</u>	<u>Passco</u>	<u>Kennewick</u>	<u>Eltopia</u>	<u>Connelly</u>	<u>Wahluke Watermaster</u>
1/15	0.16	0.20	0.19	0.17	0.17	0.19	0.19	0.18	0.19
1/12	0.16	0.23	0.21	0.15	0.16	0.19	0.19	0.18	0.19
1/19	0.16	0.23	0.21	0.15	0.16	0.19	0.15	0.18	0.19
1/26	0.16	0.23	0.21	0.15	0.16	0.19	0.15	0.18	0.19
2/2	0.19	0.23	0.21	0.15	0.16	0.22	0.15	0.18	0.22
2/9	0.19	0.26	0.20	0.22	0.22	0.22	0.15	0.18	0.22
2/16	0.19	0.26	0.20	0.22	0.22	0.22	0.21	0.20	0.24
2/23	0.19	0.26	0.20	0.22	0.22	0.22	0.21	0.20	0.24
3/1	0.20	0.26	0.20	0.22	0.22	0.24	0.21	0.20	0.24
3/8	0.20	0.29	0.27	0.24	0.26	0.24	0.21	0.20	0.24
3/15	0.20	0.29	0.27	0.24	0.26	0.24	0.19	0.20	0.25
3/22	0.20	0.29	0.26	0.24	0.26	0.24	0.19	0.20	0.25
3/29	0.21	0.29	0.26	0.24	0.26	0.22	0.19	0.20	0.25
4/5	0.21	0.27	0.24	0.23	0.19	0.22	0.19	0.20	0.25
4/12	0.21	0.27	0.24	0.23	0.19	0.22	0.19	0.19	0.26
4/19	0.21	0.27	0.24	0.23	0.19	0.22	0.19	0.19	0.26
4/26	0.20	0.27	0.24	0.23	0.19	0.24	0.19	0.19	0.26
5/3	0.20	0.24	0.21	0.19	0.20	0.24	0.19	0.19	0.23
5/10	0.20	0.24	0.21	0.19	0.20	0.24	0.22	0.20	0.25
5/17	0.20	0.24	0.19	0.19	0.20	0.24	0.22	0.20	0.25
5/24	0.20	0.24	0.19	0.19	0.20	0.22	0.22	0.20	0.25
5/31	0.20	0.26	0.25	0.21	0.21	0.22	0.22	0.20	0.26
6/7	0.20	0.26	0.25	0.21	0.21	0.22	0.21	0.19	0.25
6/14	0.20	0.26	0.22	0.21	0.21	0.22	0.21	0.19	0.25
6/21	0.18	0.26	0.22	0.21	0.21	0.21	0.21	0.19	0.21

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

APPENDIX H

TABLE 4 PART A (Continued)
 TLD MEASUREMENTS AT 3 FEET ABOVE THE GROUND - 1972
 Units of mR/day

Approx. Wk. On Date	Ringold	EASTERN QUADRANT								Berg Ranch	Wahluke Watermaster
		Byers Landing	Richland	Pasco	Kennewick	Eltopia	Connell	Othello	New Moon		
6/28	0.18	0.24	0.23	0.18	0.19	0.21	0.19	0.25	0.21	0.21	0.21
7/5	0.18	0.24	0.23	0.18	0.19	0.21	0.19	0.26	0.20	0.21	0.21
7/12	0.18	0.24	0.23	0.18	0.19	0.21	0.19	0.26	0.20	0.21	0.21
7/19	0.18	0.24	0.23	0.18	0.19	0.20	0.19	0.26	0.20	0.21	0.20
7/26	0.18	0.23	0.20	0.18	0.19	0.20	0.19	0.26	0.20	0.21	0.20
8/2	0.18	0.23	0.20	0.18	0.19	0.20	0.20	0.20	0.24	0.21	0.20
8/9	0.18	0.23	0.20	0.18	0.19	0.20	0.20	0.20	0.24	0.21	0.20
8/16	0.19	0.23	0.20	0.18	0.19	0.26	0.20	0.20	0.24	0.24	0.23
8/23	0.19	0.28	0.18	0.21	0.20	0.26	0.20	0.24	0.24	0.24	0.23
8/30	0.19	0.28	0.18	0.21	0.20	0.26	0.22	0.21	0.28	0.24	0.23
9/6	0.19	0.28	0.21	0.21	0.20	0.26	0.22	0.21	0.28	0.24	0.23
9/13	0.20	0.28	0.21	0.21	0.20	0.28	0.22	0.21	0.28	0.24	0.23
9/20	0.20	0.28	0.20	0.22	0.21	0.28	0.22	0.21	0.28	0.24	0.23
9/27	0.20	0.28	0.20	0.22	0.21	0.28	0.21	0.26	0.24	0.24	0.23
10/4	0.20	0.28	0.22	0.22	0.21	0.28	0.21	0.28	0.24	0.24	0.23
10/11	0.19	0.28	0.22	0.22	0.21	0.28	0.22	0.21	0.28	0.24	0.23
10/18	0.19	0.24	0.22	0.19	0.19	0.24	0.21	0.28	0.24	0.24	0.23
10/25	0.19	0.24	0.22	0.19	0.19	0.24	0.18	0.22	0.21	0.24	0.23
11/1	0.19	0.24	0.19	0.19	0.19	0.24	0.18	0.22	0.21	0.21	0.21
11/8	0.24	0.24	0.19	0.19	0.19	0.29	0.18	0.22	0.21	0.21	0.21
11/15	0.24	0.25	0.19	0.24	0.21	0.29	0.18	0.22	0.21	0.21	0.21
11/22	0.24	0.25	0.19	0.24	0.21	0.29	0.23	0.23	0.31	0.24	0.24
11/29	0.24	0.25	0.25	0.24	0.21	0.29	0.23	0.23	0.31	0.24	0.24
12/6	0.18	0.25	0.25	0.24	0.21	0.24	0.23	0.31	0.19	0.22	0.22
12/13	0.18	0.22	0.28	0.19	0.15	0.24	0.23	0.31	0.19	0.22	0.22
12/20	0.18	0.22	0.18	0.19	0.15	0.24	0.17	0.18	0.24	0.19	0.22
Annual Average	0.20	0.26	0.22	0.20	0.20	0.24	0.20	0.24	0.22	0.22	0.22

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

APPENDIX H

TABLE 4 PART B
TLD MEASUREMENTS AT 3 FEET ABOVE THE GROUND - 1972
 Units of mR/day

PERIMETER COMMUNITIES

Approx. Wk. On <u>Date</u>	<u>Sunnyside</u>	<u>Ellensburg</u>	<u>Moses Lake</u>	<u>Washtucna</u>	<u>Walla Walla</u>	<u>McNary Dam</u>
1/5	0.16	0.16	0.15	0.19	0.19	0.18
1/12	0.16	0.16	0.15	0.19	0.16	0.18
1/19	0.16	0.15	0.16	0.16	0.16	0.18
1/26	0.16	0.15	0.16	0.16	0.16	0.18
2/2	0.16	0.15	0.16	0.16	0.16	0.18
2/9	0.16	0.15	0.16	0.16	0.24	0.23
2/16	0.19	0.20	0.19	0.20	0.24	0.23
2/23	0.19	0.20	0.19	0.20	0.24	0.23
3/1	0.19	0.20	0.19	0.20	0.24	0.23
3/8	0.19	0.20	0.19	0.20	0.23	0.24
3/15	0.19	0.18	0.21	0.25	0.23	0.24
3/22	0.19	0.18	0.21	0.25	0.23	0.24
3/29	0.19	0.18	0.21	0.25	0.23	0.24
4/5	0.19	0.18	0.21	0.25	0.19	0.21
4/12	0.15	0.15	0.23	0.22	0.19	0.21
4/19	0.15	0.15	0.23	0.22	0.19	0.21
4/26	0.15	0.15	0.23	0.22	0.19	0.21
5/3	0.15	0.15	0.23	0.22	0.18	0.19
5/10	0.17	0.15	0.21	0.22	0.18	0.19
5/17	0.17	0.15	0.21	0.22	0.18	0.19
5/24	0.17	0.15	0.21	0.22	0.18	0.19
5/31	0.17	0.15	0.21	0.22	0.20	0.19
6/7	0.16	0.15	0.23	0.22	0.20	0.19
6/14	0.16	0.15	0.23	0.22	0.20	0.19
6/21	0.16	0.15	0.23	0.22	0.20	0.19
6/28	0.16	0.15	0.23	0.22	0.21	0.21
7/5	0.16	0.14	0.18	0.22	0.21	0.21

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

APPENDIX H

TABLE 4 PART B (Continued)
TLD MEASUREMENTS AT 3 FEET ABOVE THE GROUND - 1972
Units of mR/day

PERIMETER COMMUNITIES

Approx. Wk. On Date	Sunnyside	Ellensburg	Moses Lake	Washtucna	Walla	McNary Dam
7/12	0.16	0.14	0.18	0.22	0.21	0.21
7/19	0.16	0.14	0.18	0.22	0.21	0.21
7/26	0.16	0.14	0.18	0.22	0.19	0.20
8/2	0.18	0.21	0.18	0.25	0.19	0.20
8/9	0.18	0.21	0.18	0.25	0.19	0.20
8/16	0.18	0.21	0.18	0.25	0.19	0.20
8/23	0.18	0.21	0.18	0.25	0.21	0.23
8/30	0.19	0.26	0.20	0.33	0.21	0.23
9/6	0.19	0.26	0.20	0.33	0.21	0.23
9/13	0.19	0.26	0.20	0.33	0.21	0.23
9/20	0.19	0.26	0.20	0.33	0.24	0.26
9/27	0.18	0.26	0.19	0.38	0.24	0.26
10/4	0.18	0.26	0.19	0.38	0.24	0.26
10/11	0.18	0.26	0.19	0.38	0.24	0.26
10/18	0.18	0.26	0.19	0.38	0.19	0.22
10/25	0.17	0.21	0.17	0.35	0.19	0.22
11/1	0.17	0.21	0.17	0.35	0.19	0.22
11/8	0.17	0.21	0.17	0.35	0.19	0.22
11/15	0.17	0.21	0.17	0.35	0.22	0.26
11/22	0.22	0.24	0.24	0.32	0.22	0.26
11/29	0.22	0.24	0.24	0.32	0.22	0.26
12/6	0.22	0.24	0.24	0.32	0.22	0.26
12/13	0.22	0.24	0.24	0.32	0.18	0.20
12/20	0.19	0.16	0.16	0.30	0.18	0.20
Annual Average	0.18	0.19	0.20	0.26	0.20	0.22

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

APPENDIX H

TABLE 4 PART C
TLD MEASUREMENTS AT 3 FEET ABOVE THE GROUND - 1972

Units of mR/day

OTHER LOCATIONS

Approx. Wk. On Date	Yakima Barricade	Vernita	Wahluke #2	Benton City
1/5	0.24	0.24	0.19	0.19
1/12	0.26	0.24	0.19	0.19
1/19	0.26	0.24	0.19	0.19
1/26	0.26	0.24	0.19	0.19
2/2	0.26	0.19	0.21	0.19
2/9	0.24	0.19	0.21	0.19
2/16	0.24	0.19	0.21	0.19
2/23	0.24	0.19	0.21	0.19
3/1	0.24	0.28	0.24	0.19
3/8	0.34	0.28	0.24	0.24
3/15	0.34	0.28	0.24	0.24
3/22	0.34	0.28	0.24	0.24
3/29	0.34	0.25	0.22	0.24
4/5	0.27	0.25	0.22	0.19
4/12	0.27	0.25	0.22	0.19
4/19	0.27	0.25	0.22	0.19
4/26	0.27	0.22	0.21	0.19
5/3	0.30	0.22	0.21	0.20
5/10	0.30	0.22	0.21	0.20
5/17	0.30	0.22	0.21	0.20
5/24	0.30	0.24	0.22	0.20
5/31	0.32	0.24	0.22	0.24
6/7	0.32	0.24	0.22	0.24
6/14	0.32	0.24	0.22	0.24
6/21	0.32	0.26	0.21	0.24
6/28	0.31	0.26	0.21	0.19
7/5	0.31	0.26	0.21	0.19

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.

APPENDIX H

TABLE 4 PART C (Continued)
TLD MEASUREMENTS AT 3 FEET ABOVE THE GROUND - 1972

Units of mR/day				
<u>OTHER LOCATIONS</u>				
Approx. Wk. On <u>Date</u>	<u>Yakima Barricade</u>	<u>Vernita</u>	<u>Wahluke #2</u>	<u>Benton City</u>
7/12	0.31	0.26	0.21	0.19
7/19	0.31	0.24	0.19	0.19
7/26	0.28	0.24	0.19	0.21
8/2	0.28	0.24	0.19	0.21
8/9	0.28	0.24	0.19	0.21
8/16	0.28	0.26	0.21	0.21
8/23	0.24	0.26	0.21	0.23
8/30	0.24	0.26	0.21	0.23
9/6	0.24	0.26	0.21	0.23
9/13	0.24	0.29	0.24	0.23
9/20	0.25	0.29	0.24	0.24
9/27	0.25	0.29	0.24	0.24
10/4	0.25	0.29	0.24	0.24
10/11	0.25	0.25	0.20	0.24
10/18	0.21	0.25	0.20	0.21
10/25	0.21	0.25	0.20	0.21
11/1	0.21	0.25	0.20	0.21
11/8	0.21	0.26	0.26	0.21
11/15	0.25	0.26	0.26	0.26
11/22	0.25	0.26	0.26	0.26
11/29	0.25	0.26	0.26	0.26
12/6	0.25	0.29	0.20	0.26
12/13	0.21	0.29	0.20	0.20
12/20	0.21	0.29	0.20	0.20
Annual Average	0.26	0.25	0.22	0.22

As a result of sampling schedules, the on-date for some locations may differ by a few days from the date indicated.



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APPENDIX I



APPENDIX I

TABLE 1
NITRATES IN COLUMBIA RIVER WATER AT
VERNITA AND RICHLAND - 1972

Units of ppm of Water			
<u>Date</u>	<u>Vernita</u>	<u>Date</u>	<u>Richland</u>
1/4	0.35	1/3	0.56
1/11	0.43	1/10	0.69
1/18	0.47	1/17	0.86
1/25	0.39	1/24	0.44
2/1	0.39	1/31	0.65
2/8	0.46	2/7	0.59
2/15	0.43	2/14	0.39
2/22	0.35	2/22	0.41
2/29	0.38	2/29	0.34
3/7	0.44	3/7	0.35
3/14	0.64	3/14	0.63
3/21	0.92	3/21	0.86
3/28	0.96	3/28	1.0
4/4	0.33	4/4	0.27
4/11	0.36	4/11	0.35
4/18	0.37	4/18	0.36
4/25	0.19	4/25	0.27
5/2	0.32	5/2	0.18
5/9	*0.10	5/9	0.16
5/16	0.20	5/16	0.18
5/23	0.16	5/23	0.15
5/30	0.17	5/30	0.24
6/6	0.21	6/6	0.21
6/13	0.21	6/13	0.22
6/20	0.22	6/20	0.18
6/27	0.31	6/27	0.17
7/5	0.34	7/5	0.31
7/11		7/11	0.33
7/18	0.22	7/18	0.15
7/25	1.3	7/25	0.40
8/1	0.20	8/1	0.20
8/8	0.34	8/8	0.17
8/15	0.18	8/15	0.28
8/22	0.33	8/22	0.22
8/29	0.19	8/29	0.14

No entry indicates no analysis was made.

*Indicates the results were less than the analytical limit.

APPENDIX I

TABLE 1 (Continued)

NITRATES IN COLUMBIA RIVER WATER AT
VERNITA AND RICHLAND - 1972

<u>Date</u>	<u>Vernita</u>	<u>Date</u>	<u>Richland</u>
9/5	0.14	9/5	0.58
9/12	0.35	9/12	0.33
9/19	0.16	9/19	0.21
9/26	0.28	9/26	0.33
10/3	0.29	10/3	0.36
10/10	0.27	10/10	0.23
10/17	0.32	10/17	0.31
10/24	0.42	10/24	0.35
10/31	0.34	10/31	0.31
11/7	0.30	11/7	0.34
11/14	0.24	11/14	0.37
11/21	0.29	11/21	0.31
11/28	0.26	11/28	0.31
12/5	0.18	12/5	0.37
12/12	0.36	12/12	0.35
12/20	0.38	12/20	0.40
12/22	0.59	12/22	0.59
Annual Average	0.36		0.37

APPENDIX I

TABLE 2

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT VERNITA - 1972

<u>Date</u>	<u>pH</u>	Turbidity (JTU) (a)	Diss O ₂ (ppm)
1/4	7.8	0.6	12.5
1/11	8.2	1.3	
1/18	8.0	1.3	
1/25	8.2	2.1	
2/1	8.0	1.7	13.1
2/8	8.1	1.3	13.6
2/15	8.1	1.5	13.6
2/23	7.4	4.0	
2/29	7.7	4.0	
3/7	7.8	2.5	13.2
3/14	8.1	3.7	10.5
3/21	8.1	12.0	9.8
3/28	7.7	10.0	9.6
4/4	7.9	10.0	10.5
4/11	8.5	8.8	11.0
4/18	8.6	5.8	10.9
4/25	8.7	5.0	10.8
5/2	9.1	3.3	12.0
5/9	8.4	4.2	10.6
5/16	8.2	6.5	9.9
5/23	8.1	9.0	
5/30	8.0	6.0	
6/6	7.4	20.0	
6/13	8.2	28.0	
6/27	9.2	8.0	
7/5		7.3	
7/11		6.0	
7/18		6.0	
7/25	8.0	3.5	
8/1	8.2	5.0	12.2
8/8	8.3	5.0	12.5
8/15	8.1	3.3	12.1
8/22	8.0	3.0	11.1
8/29	8.2	2.3	

(a) Jackson turbidity units.
No entry indicates no analysis was made.

APPENDIX I

TABLE 2 (Continued)

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT VERNITA - 1972

<u>Date</u>	<u>pH</u>	Turbidity (JTU) (a)	Diss O ₂ (ppm)
9/5	8.2	1.5	10.3
9/12	8.1	5.0	
9/19			11.6
9/26	8.2	5.0	10.8
10/3	8.2	1.0	9.4
10/10	8.1	1.3	8.6
10/17	8.1	1.0	8.6
10/24	7.4	1.4	9.5
10/31	8.2		8.0
11/7	7.9	1.6	9.1
11/14	8.1	1.0	10.3
11/21	7.9	1.1	9.0
11/28	8.1	1.0	8.5
12/5	7.8	0.7	6.1
12/12	8.0	1.5	4.0
12/19	8.0	1.6	9.7
12/22	8.0		
Annual Average	8.1	5.0	10.6

(a) Jackson turbidity units.
No entry indicates no analysis was made.

APPENDIX I

TABLE 3

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	Turbidity (JTU) (a)	Diss O ₂ (ppm)
1/3	8.1	0.9	9.8
1/4	7.8	0.5	12.2
1/5	7.9	0.9	12.6
1/6	8.1	1.4	12.6
1/7	7.9	0.8	12.3
1/10	8.2	1.0	14.7
1/11	8.0	2.1	14.6
1/12	7.9	3.0	13.8
1/13	7.9	1.3	13.4
1/14	7.8	1.1	13.6
1/17	7.4	3.5	13.5
1/18	7.8	1.2	11.4
1/19	7.9	0.4	
1/20	8.0	1.3	13.4
1/21	7.8	3.5	14.5
1/24	8.3	1.5	
1/25	8.0	1.7	
1/27	8.0	2.0	12.8
1/28	8.1	1.6	
1/31	7.9	2.2	13.0
2/1	8.1	1.7	13.1
2/2	8.1	2.0	13.0
2/4	8.0	2.0	12.8
2/7	8.2	1.8	14.2
2/8	8.0	1.8	13.7
2/9	8.0	1.3	13.9
2/10	7.9	1.3	13.3
2/11	7.9	1.6	13.7
2/14	8.1	1.6	13.8
2/15	8.1	1.6	13.1
2/17	7.8	4.0	12.8
2/18	8.1	3.0	12.6
2/22	8.2	5.0	13.1
2/24	7.5	3.6	13.2
2/25	7.4	3.7	13.1
2/28	7.9	4.2	13.2

(a) Jackson turbidity units.
No entry indicates no analysis was made.

APPENDIX I

TABLE 3 (Continued)
 WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
 AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	Turbidity (JTU) (a)	Diss O ₂ (ppm)
2/29	7.7	5.2	12.3
3/1	7.8	2.3	13.3
3/2	7.8	2.4	13.4
3/3	7.7	4.3	12.8
3/6	7.8	0.6	13.0
3/7	8.0	2.7	14.2
3/8	7.8	2.3	12.5
3/9	8.0	2.3	11.9
3/10	7.5	4.4	
3/13	8.2	0.8	10.5
3/14	8.2	3.3	10.2
3/16	8.1	4.5	10.8
3/17	8.3	4.3	
3/20	8.4	6.0	10.2
3/21	8.1	9.0	9.7
3/22	7.4	13.	10.0
3/23	8.0	10.	10.2
3/24	8.0	11.	9.4
3/27	8.0	10.	10.0
3/28	7.4	12.	9.7
3/29	7.7	13.	10.2
3/30	7.6	11.	9.8
3/31	7.8	11.	10.2
4/3	7.8	9.0	10.3
4/4	7.8	9.0	10.2
4/5	7.9	9.0	9.7
4/6	8.1	9.0	9.4
4/7	7.4	8.5	10.7
4/10	7.2	7.7	11.1
4/11	8.4	7.9	11.2
4/13	8.6	6.0	9.7
4/14	8.5	6.0	10.6
4/17	8.6	6.5	10.1
4/18	8.6	7.0	10.4
4/20	8.6	4.5	10.8
4/21	8.4	4.5	
4/24	8.5	4.7	11.2

(a) Jackson turbidity units.
 No entry indicates no analysis was made.

APPENDIX I

TABLE 3 (Continued)

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	Turbidity (JTU) (a)	Diss O ₂ (ppm)
4/25	8.7	5.0	10.3
4/26	8.1	2.2	10.3
4/27	8.9	2.8	10.8
4/28	8.8	3.2	10.4
5/1	9.1	2.8	11.4
5/2	9.0	2.8	10.2
5/3	9.1	5.0	10.5
5/4	9.0	3.4	10.7
5/5	8.8	3.2	
5/8	8.3	4.0	10.3
5/9	8.4	4.0	10.5
5/11	8.4	3.8	10.0
5/12	8.2	6.0	10.3
5/15	8.2	6.0	10.0
5/16	8.2	7.0	9.9
5/17	8.2	6.7	9.8
5/18	8.3	7.8	10.5
5/19	8.1	6.7	10.4
5/22	8.1	10.	11.0
5/23	8.4	10.	10.7
5/24	8.2	8.4	11.2
5/25	8.3	8.5	10.7
5/26	8.2	7.8	10.9
5/30	8.0	5.7	
5/31	8.0	7.6	
6/1	8.0	8.3	
6/2	7.6	17.	
6/5	7.5	26.	
6/6	7.5	23.	
6/8	7.6	17.	
6/9	7.3	20.	
6/12	7.3	30.	
6/13	7.9	30.	
6/14	8.0	30.	
6/15	8.0	25.	
6/16	8.1	13.	
6/19	7.2	11.	
6/20	7.9	11.	
6/21	8.2	12.	

(a) Jackson turbidity units.
No entry indicates no analysis was made.

APPENDIX I

TABLE 3 (Continued)
 WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
 AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	<u>Turbidity</u> <u>(JTU) (a)</u>	<u>Diss O₂</u> <u>(ppm)</u>
6/22	8.2	12.	
6/23	9.2	9.5	
6/26	9.2	8.7	
6/27	9.2	10.	
6/28	9.4	9.3	
6/29	9.3	9.2	
6/30	8.8	10.	
7/3	8.8	8.0	
7/5		6.8	
7/6		7.0	
7/7		7.0	
7/10	7.8	5.0	
7/19	8.4	6.0	
7/20	8.2	5.0	
7/21	8.2	3.5	
7/24	8.3	3.5	
7/25	8.3	6.0	
7/26	8.2	3.2	
7/27	8.2	3.2	
7/28	8.0	3.3	
7/31	7.5	3.1	11.9
8/1	8.1	5.0	11.3
8/2	8.2	3.4	11.6
8/3	8.2	4.0	11.8
8/4	8.0	4.0	11.5
8/7	8.0	7.0	12.0
8/8	8.2	5.0	11.6
8/9	8.2	8.0	11.6
8/10	8.0	6.0	11.4
8/11	8.0	4.8	11.8
8/14	8.0	3.8	11.2
8/15	8.1	3.0	11.5
8/16	8.1	3.3	11.8
8/17	8.2	7.0	10.6
8/18	8.1	2.5	9.9
8/21		3.8	10.6
8/22	8.0	3.0	10.6
8/23	8.1	5.0	10.5
8/24	7.8	3.0	10.7

(a) Jackson turbidity units.
 No entry indicates no analysis was made.

APPENDIX I

TABLE 3 (Continued)

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	Turbidity (JTU) (a)	Diss O ₂ (ppm)
10/19	8.0	1.0	8.5
10/20	7.5	1.5	8.8
10/23	8.2	4.0	10.2
10/24	7.4	1.2	9.7
10/26	8.2	1.5	8.9
10/27	7.9	1.4	8.9
10/30	8.1	4.0	9.1
10/31	7.7	1.9	8.6
11/2	8.0		8.3
11/3	8.0	1.5	8.3
11/6	8.0	1.5	8.8
11/7	7.9	1.4	9.4
11/8	7.9	1.0	8.3
11/9	7.9		8.1
11/10	7.9		9.2
11/13	8.0	1.0	
11/14	8.0	1.0	11.7
11/15	7.9	1.0	9.4
11/16	8.0	1.4	9.2
11/17	7.5	1.4	9.2
11/20	7.4	1.3	9.4
11/21	7.8	1.0	8.9
11/27	7.7	1.2	9.0
11/28	8.1	1.0	8.8
11/30	7.9	1.2	8.4
12/1	7.7	1.2	8.7
12/4	8.1	0.1	9.2
12/5	7.8	0.7	8.8
12/6	7.7	0.5	9.2
12/7	8.0	2.1	9.3
12/8	8.0	1.7	9.2
12/11	7.9	2.3	10.4
12/12	8.0	1.5	10.6
12/13	8.0	1.5	9.1
12/14	8.0	1.5	10.0
12/15	7.6	1.5	10.1
12/18	7.7	1.7	9.6
12/19	8.0	1.7	9.9

No entry indicates no analysis was made.

APPENDIX I

TABLE 3 (Continued)

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	<u>Turbidity</u> (JTU) (a)	<u>Diss O₂</u> (ppm)
8/25	7.8	3.0	10.7
8/28	7.8	2.8	10.6
8/29	8.0	2.6	10.6
8/30	8.2	2.4	9.9
8/31	8.3	2.7	9.8
9/1	8.2	2.6	9.4
9/5	8.0	2.2	9.9
9/6	8.1	1.5	9.6
9/7	8.2	2.0	8.7
9/8	7.4	2.0	9.9
9/11	8.1	1.9	10.6
9/12	7.9	2.0	10.3
9/13	8.1	2.2	9.8
9/14	8.0		10.2
9/15	8.0		10.2
9/19			10.2
9/20			10.6
9/21		4.0	9.4
9/22	7.3	4.7	9.7
9/25	7.7	5.0	10.3
9/26	8.1	4.0	9.8
9/27	8.0	4.0	9.6
9/28	8.3	3.0	9.6
9/29	8.2		9.4
10/2	8.2		10.0
10/3	8.2		9.2
10/4	8.2	1.0	
10/5	8.2	1.0	
10/6	8.0	2.0	
10/9	8.1	1.2	8.8
10/10	8.0	1.4	8.7
10/11	8.0	1.5	8.8
10/12	8.1	4.0	8.8
10/13	8.1	1.0	8.6
10/16	8.1	4.0	9.2
10/17	8.0	1.0	8.5
10/18	8.0	1.2	8.4

No entry indicates no analysis was made.

APPENDIX I

TABLE 3 (Continued)

WATER QUALITY MEASUREMENTS IN COLUMBIA RIVER WATER
AT THE 300 AREA - 1972

<u>Date</u>	<u>pH</u>	<u>Turbidity</u> (JTU) (a)	<u>Diss O₂</u> (ppm)
12/21	7.5	1.5	9.9
12/22	8.0		9.6
12/27	7.3	1.5	
12/28	8.0		10.6
12/29	7.9		10.4
Annual			
	Average 8.0	4.6	10.5

No entry indicates no analysis was made.

APPENDIX I

TABLE 4
BIOLOGICAL MEASUREMENTS OF COLUMBIA RIVER WATER AT
VERNITA AND RICHLAND - 1972

<u>Date</u>	<u>Vernita</u>			<u>Richland</u>		
	<u>Coliform (per 100 ml)</u>	<u>Enterocci (per 100 ml)</u>	<u>BOD (mg/l)</u>	<u>Coliform (per 100 ml)</u>	<u>Enterococi (per 100 ml)</u>	<u>BOD (mg/l)</u>
1/11	2.	7.	3.8	4.	4.	4.2
2/8	1.	1.	1.9	10.	16.	2.9
3/14	10.	2.	3.2	2.	2.	2.8
4/4	6.	7.	4.1	6.	14.	3.5
6/20	100.	10.	3.2	90.	82.	4.0
7/11	100.	20.	3.2	270.	30.	3.2
8/8	210.	37.	3.3	90.	48.	4.0
8/22	120.	39.	1.2	20.	43.	1.2
9/5	40.	99.	2.2			
9/19	84.	49.	2.4			
10/3	35.	280.	1.8			
10/24	120.	190.	2.1			
11/14	12.	7.	1.0	14.	40.	1.7
12/12	9.	3.	1.8	6.	5.	1.6
Annual Average	49.	37.	2.6	88.	34	2.9

No entry indicates no analysis was made.

APPENDIX I

TABLE 5

TEMPERATURES OF COLUMBIA RIVER WATER AT PRIEST RAPIDS
DAM AND RICHLAND - 1972

<u>Date</u>	Priest Rapids Dam	<u>Richland</u>
January	3.6	3.2
February	1.9	2.0
March	4.0	3.8
April	7.2	7.0
May	10.6	11.0
June	12.9	13.4
July	15.2	15.5
August	17.5	17.9
September	18.1	16.8
October	16.8	14.0
November	13.8	10.5
December	9.1	6.2
Annual Average	10.9	10.1



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BNWL-1727 ADD

APPENDIX J



APPENDIX J

TABLE 1

CHEMICALS IN RICHLAND DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Units of ppm of Water

<u>Date</u>	<u>NO₃</u>	<u>F⁻</u>	<u>Date</u>	<u>NO₃</u>	<u>F⁻</u>
12/27-1/3	0.53	0.13	7/10-7/17	0.32	0.11
1/3-1/10	0.85	0.14	7/17-7/24	0.33	0.10
1/10-1/17	0.60	0.14	7/24-7/31	0.80	0.10
1/17-1/24	0.49	0.14	7/31-8/7	0.10	0.12
1/24-1/31	0.51	0.14	8/7-8/14	0.29	0.12
1/31-2/7	4.5	0.16	8/14-8/21	0.41	0.12
2/7-2/14	16.0	0.21	8/21-8/28	0.33	0.10
2/14-2/22	0.80	0.18	8/28-9/4	0.31	0.13
2/22-2/28	1.4	0.18	9/4-9/11	0.36	0.11
2/28-3/6	0.23	0.16	9/11-9/18	0.60	0.11
3/6-3/13	2.0	0.20	9/18-9/25	0.50	0.10
3/13-3/20	2.1	0.18	9/25-10/2	0.40	0.10
3/20-3/27	10.0	0.21	10/2-10/9	0.37	0.13
3/27-4/3	0.35	0.21	10/9-10/16	0.45	0.13
4/3-4/10	0.36	0.21	10/16-10/23	0.53	0.13
4/10-4/17	0.33	0.19	10/23-10/30	5.4	0.18
4/17-4/24	0.22	0.18	10/30-11/6	4.6	
4/24-5/1	0.36	0.17	11/6-11/13	1.3	
5/8-5/15	0.10	0.16	11/13-11/20	0.41	
5/15-5/22	0.54	0.16	11/20-11/27	0.45	
5/22-5/30	0.44	0.11	11/27-12/4	0.73	
5/30-6/5	0.25	0.10	12/4-12/11	0.54	
6/5-6/12	7.0	0.11	12/11-12/18	0.56	
6/12-6/19	1.0	0.11	12/18-12/21	0.48	
6/19-6/26	3.1	0.11			
6/26-7/3	0.30	0.12			
7/3-7/10	0.08	0.12	Annual Average	1.5	0.14

No entry indicates no analysis was made.

APPENDIX J

TABLE 2

CHEMICALS IN 300 AREA DRINKING WATER
(CUMULATIVE SAMPLES) - 1972

Units of ppm of Water

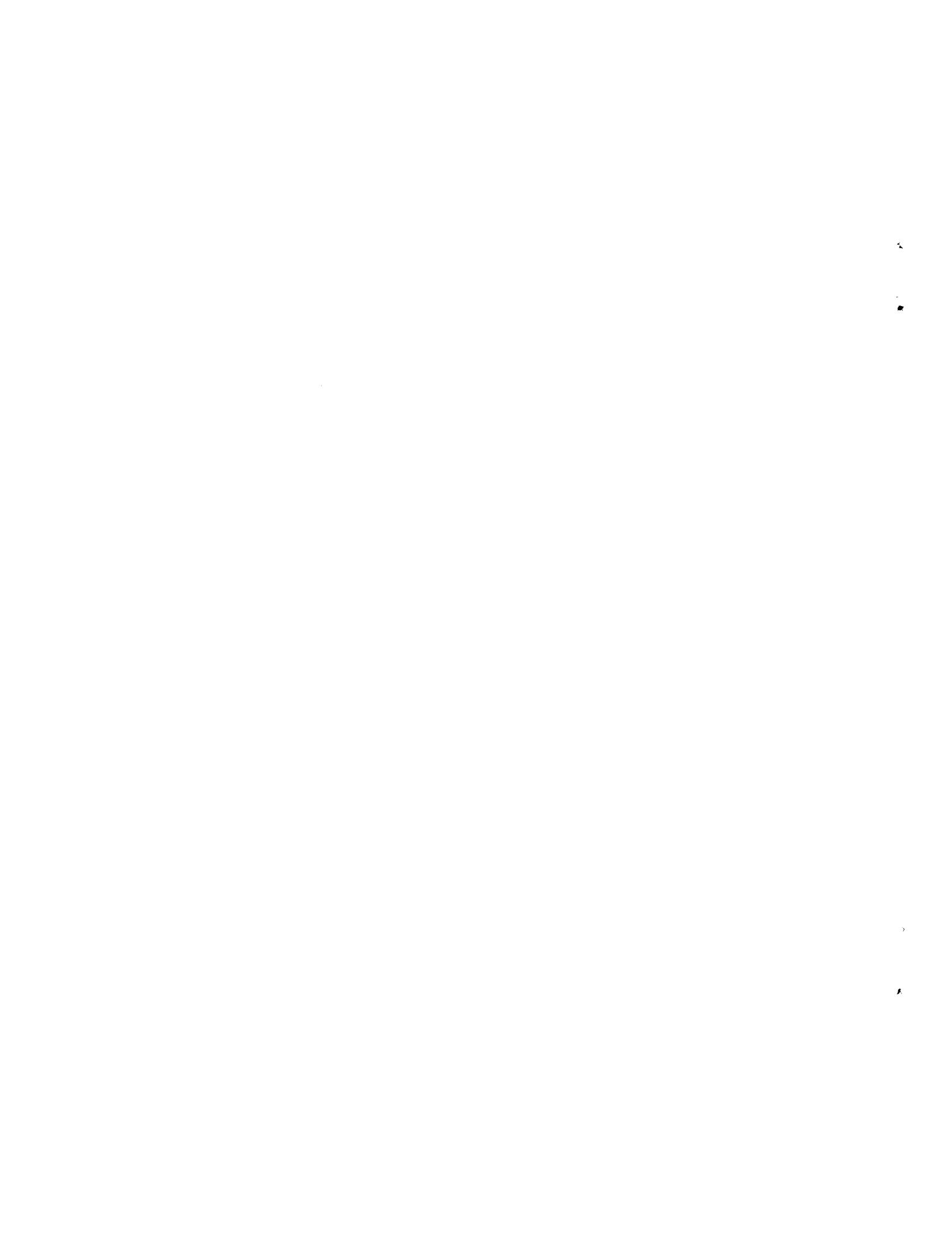
<u>Date</u>	<u>NO₃</u>	<u>F⁻</u>	<u>Date</u>	<u>NO₃</u>	<u>F⁻</u>
12/27-1/3	0.53	0.13	7/3-7/10	0.27	0.11
1/3-1/10	0.83	0.13	7/10-7/17	0.33	0.10
1/10-1/17	0.69	0.14	7/17-7/24	0.44	0.10
1/17-1/24	0.81	0.13	7/24-7/31	0.24	<0.10
1/24-1/31	0.60	0.14	7/31-8/7	0.19	0.11
1/31-2/7	0.58	0.14	8/7-8/14	0.38	0.11
2/7-2/14	0.50	0.14	8/14-8/21	0.58	0.12
2/14-2/22	0.75	0.16	8/21-8/28	0.45	<0.10
2/22-2/28	0.61	0.16	8/28-9/4	0.39	0.13
2/28-3/6	0.41	0.14	9/4-9/11	0.63	0.12
3/6-3/13	0.75	0.16	9/18-9/25	0.58	0.10
3/13-3/20	0.91	0.16	9/25-10/2	0.45	0.10
3/20-3/27	0.97	0.17	10/2-10/9	0.50	0.12
3/27-4/3	0.82	0.18	10/9-10/16	0.53	0.12
4/3-4/10	0.59	0.21	10/16-10/23	0.54	0.12
4/10-4/17	0.31	0.18	10/23-10/30	0.50	0.13
4/17-4/24	0.72	0.17	10/30-11/6	0.63	
4/24-5/1	0.20	0.17	11/6-11/13	0.68	
5/8-5/15	0.06	0.15	11/13-11/20	0.61	
5/15-5/22	0.05	0.15	11/20-11/27	0.54	
5/22-5/30	0.17	<0.10	11/27-12/4	0.50	
5/30-6/5	0.27	<0.10	12/4-12/11	0.47	
6/5-6/12	0.40	<0.10	12/11-12/18	0.58	
6/12-6/19	0.29	<0.10	12/18-12/21	0.64	
6/19-6/26	0.33	<0.10			
6/26-7/3	0.29	<0.10	Average	0.50	0.13

No entry indicates no analysis was made.

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BNWL-1727 ADD

APPENDIX K



APPENDIX K

TABLE 1

SUSPENDED PARTICULATES IN THE AIR AT RICHLAND
(CONTINUOUS SAMPLES) - 1972

<u>Units of $\mu\text{g}/\text{m}^3$ of Air</u>			
<u>Date</u>	<u>Suspended Particulates</u>	<u>Date</u>	<u>Suspended Particulates</u>
12/30-1/5	44	7/31-8/6	150
1/5-1/10	150	8/6-8/11	210
1/10-1/14	790	8/11-8/17	120
1/14-1/18	600	8/29-9/1	190
1/18-1/21	170	9/1-9/6	220
1/21-1/27	350	9/6-9/11	160
1/27-2/1	82	9/11-9/15	200
2/1-2/8	86	9/15-9/20	450
2/8-2/11	52	9/20-9/25	130
2/11-2/17	490	9/25-9/29	97
2/17-2/23	48	9/29-10/4	180
2/23-2/28	940	10/4-10/9	250
3/9-3/13	59	10/9-10/10	280
3/13-3/16	76	10/10-10/11	46
3/16-3/21	240	10/11-10/12	86
3/21-3/24	97	10/12-10/13	95
3/24-3/29	93	10/13-10/17	130
3/29-4/3	430	10/17-10/20	150
4/3-4/7	440	10/20-10/23	110
4/10-4/14	81	10/23-10/27	260
4/14-4/18	130	10/27-11/1	72
4/18-4/24	220	11/1-11/6	39
4/24-4/28	390	11/6-11/10	43
4/28-5/2	130	11/10-11/15	51
5/2-5/9	140	11/15-11/20	55
6/6-6/9	140	11/20-11/22	40
6/9-6/14	90	11/22-11/27	28
6/14-6/20	130	11/27-12/1	70
6/20-6/23	170	12/1-12/7	160
6/23-6/28	53	12/7-12/12	110
6/28-7/3	130	12/12-12/15	67
7/3-7/10	140	12/20-12/22	37
7/10-7/14	140	12/22-12/27	31
7/14-7/19	160	12/27-1/2	93
7/19-7/25	120		
7/25-7/31	140	Average	174

APPENDIX K

TABLE 2

NITROGEN IN THE AIR AT THE HOBKIRK RANCH - 1972

Unit of ppm of Air

<u>Date</u>	<u>No₂ in Air</u>	<u>Date</u>	<u>No₂ in Air</u>	<u>Date</u>	<u>No₂ in Air</u>
1/5	0.003	7/9	0.003	9/19	0.003
1/6	0.004	7/10	0.002	9/20	0.005
1/7	0.002	7/11	0.004	9/28	0.006
1/8	0.003	7/12	0.0008	9/29	0.006
1/9	0.005	7/20	0.009	9/30	0.006
1/10	0.003	7/21	0.011	10/1	0.008
3/9	0.008	7/22	0.008	10/2	0.008
3/10	0.002	7/23	0.007	10/3	0.004
3/11	0.003	7/24	0.007	10/4	0.004
3/12	0.0009	7/25	0.006	10/12	0.007
3/13	0.002	7/26	0.006	10/13	0.005
3/14	0.002	8/3	0.008	10/14	0.006
3/15	<0.0008	8/4	0.002	10/15	0.010
3/23	0.034	8/5	0.008	10/16	0.008
3/24	0.018	8/6	0.010	10/17	0.009
3/25	0.018	8/7	0.013	10/18	0.007
3/26	0.012	8/8	0.010	11/8	0.003
3/27	0.010	8/9	0.010	11/9	0.004
3/28	0.010	8/17	0.009	11/10	0.003
3/29	0.004	8/18	0.007	11/11	0.002
4/6	0.013	8/19	0.007	11/12	0.003
4/7	0.006	8/20	0.009	11/13	0.002
4/8	0.019	8/21	0.005	11/14	0.007
4/9	0.008	8/22	0.006	11/22	0.004
4/10	0.019	8/23	0.011	11/23	0.004
4/11	0.011	8/30	0.006	11/24	0.002
4/12	0.006	8/31	0.006	11/25	0.007
4/20	0.003	9/1	0.003	11/26	0.003
4/21	0.002	9/2	0.008	11/27	0.005
4/22	0.002	9/3	0.006	11/28	0.007
4/23	0.002	9/4	0.010	12/27	0.0007
4/24	0.002	9/5	0.004	12/28	0.004
4/25	0.002	9/14	0.006	12/29	0.006
4/26	0.0006	9/15	0.007	12/30	0.004
7/6	0.004	9/16	0.006	12/31	0.004
7/7	0.003	9/17	0.003		
7/8	0.002	9/18	0.005	Average	0.006

APPENDIX K

TABLE 3

NITROGEN IN THE AIR AT THE GILLIUM RANCH - 1972

Units of ppm of Air					
Date	<u>NO₂</u> in Air	Date	<u>NO₂</u> in Air	Date	<u>NO₂</u> in Air
2/23	0.004	7/8	<0.0008	9/18	0.006
2/24	0.002	7/9	0.0008	9/19	0.002
2/25	0.003	7/10	0.003	9/20	0.003
2/26	0.001	7/11	0.003	9/28	0.006
2/27	<0.0008	7/12	0.006	9/29	0.006
2/28	<0.0008	7/20	0.008	9/30	0.006
2/29	0.001	7/21	0.003	10/1	0.006
3/9	0.007	7/22	0.004	10/2	0.005
3/10	0.014	7/23	0.006	10/3	0.004
3/11	<0.0008	7/24	0.006	10/4	0.003
3/12	0.006	7/25	0.006	10/26	0.003
3/13	0.003	7/26	0.005	10/27	0.002
3/14	0.003	8/3	0.006	10/28	0.001
3/15	0.003	8/4	0.010	10/29	0.001
3/23	0.004	8/5	0.009	10/30	0.003
3/24	0.012	8/6	0.011	10/31	0.003
3/25	0.002	8/7	0.012	11/22	0.005
3/26	<0.0008	8/8	0.011	11/23	0.004
3/27	<0.0008	8/9	0.010	11/24	0.002
3/28	<0.0008	8/17	0.009	11/25	0.003
3/29	0.006	8/18	0.008	11/26	0.002
4/6	0.006	8/19	0.007	11/27	0.003
4/7	0.0005	8/20	0.009	11/28	0.005
4/8	0.002	8/21	0.004	12/13	0.006
4/9	0.005	8/22	0.001	12/14	0.002
4/10	0.006	8/23	0.006	12/15	0.003
4/11	0.004	8/30	0.008	12/16	0.004
4/12	0.002	8/31	0.004	12/17	0.003
4/20	0.002	9/1	0.004	12/18	0.003
4/21	0.004	9/2	0.007	12/19	0.003
4/22	0.004	9/3	0.007	12/27	0.002
4/23	0.003	9/4	0.005	12/28	0.002
4/24	0.007	9/5	0.003	12/29	0.003
4/25	0.001	9/14	0.005	12/30	0.004
4/26	0.001	9/15	0.005	12/31	0.002
7/6	0.003	9/16	0.006	Average	0.004
7/7	0.002	9/17	0.002		

APPENDIX K

TABLE 4
NITROGEN IN THE AIR AT THE SULLIVAN RANCH - 1972

Units of ppm of Air					
<u>Date</u>	<u>NO₂ in Air</u>	<u>Date</u>	<u>NO₂ in Air</u>	<u>Date</u>	<u>NO₂ in Air</u>
2/23	0.003	7/8	0.003	9/18	0.003
2/24	0.004	7/9	0.002	9/19	0.002
2/25	0.002	7/10	0.004	9/20	0.002
2/26	0.002	7/11	0.002	9/28	0.004
2/27	0.002	7/12	0.001	9/29	0.005
2/28	0.002	7/20	0.004	9/30	0.005
2/29	<0.0008	7/21	0.008	10/1	0.004
3/9	0.002	7/22	0.006	10/2	0.007
3/10	<0.0008	7/23	0.005	10/3	0.004
3/11	0.002	7/24	0.004	10/4	0.003
3/12	0.004	7/25	0.004	10/12	0.006
3/13	<0.0008	7/26	0.006	10/13	0.006
3/14	0.002	8/3	0.010	10/14	0.006
3/15	<0.0008	8/4	0.010	10/15	0.005
3/23	0.004	8/5	0.007	10/16	0.009
3/24	0.004	8/6	0.005	10/17	0.007
3/25	0.0008	8/7	0.006	10/18	0.008
3/26	0.007	8/8	0.009	10/26	0.002
3/27	0.0008	8/9	0.009	10/27	0.002
3/28	<0.0008	8/17	0.006	10/28	0.0007
3/29	<0.0008	8/18	<0.0008	10/29	0.002
4/6	0.008	8/19	0.0009	10/30	0.002
4/7	0.009	8/20	0.004	10/31	0.002
4/8	0.012	8/21	0.001	11/22	0.004
4/9	0.006	8/22	0.003	11/23	0.003
4/10	0.006	8/23	0.003	11/24	0.001
4/11	0.007	8/30	0.007	11/25	0.004
4/12	0.0005	8/31	0.004	11/26	0.001
4/20	0.003	9/1	0.011	11/27	0.019
4/21	0.003	9/2	0.006	11/28	0.007
4/22	0.002	9/3	0.005	12/27	0.003
4/23	0.002	9/4	0.007	12/28	0.001
4/24	0.002	9/5	0.007	12/29	0.004
4/25	0.001	9/14	0.005	12/30	0.004
4/26	0.002	9/15	0.006	12/31	0.002
7/6	0.008	9/16	0.002	Average	0.004
7/7	0.004	9/17	0.002		

APPENDIX K

TABLE 5

NITROGEN IN THE AIR AT THE KEYS RANCH - 1972

Units of ppm of Air

<u>Date</u>	<u>NO₂ in Air</u>	<u>Date</u>	<u>NO₂ in Air</u>	<u>Date</u>	<u>NO₂ in Air</u>
1/5	0.005	4/20	0.003	9/14	0.007
1/6	0.004	4/21	0.003	9/15	0.010
1/7	0.003	4/22	0.004	9/16	0.005
1/8	0.002	4/23	0.002	9/17	0.003
1/9	0.004	4/24	0.005	9/18	0.005
1/10	0.002	4/25	0.002	9/19	0.005
1/11	0.004	4/26	0.002	9/20	0.005
1/19	0.003	7/6	0.005	9/28	0.003
1/20	0.005	7/7	0.001	9/29	0.005
1/21	0.004	7/8	0.003	9/30	0.005
1/22	0.005	7/9	0.006	10/1	0.005
1/23	0.002	7/10	0.005	10/2	0.006
1/24	0.004	7/11	0.003	10/3	0.005
1/25	0.003	7/12	0.004	10/4	0.009
2/23	0.003	7/20	0.006	11/8	0.003
2/24	0.004	7/21	0.006	11/9	0.002
2/25	0.002	7/22	0.006	11/10	0.001
2/26	0.002	7/23	0.006	11/11	0.004
2/27	0.002	7/24	0.003	11/12	0.003
2/28	0.002	7/25	0.005	11/13	0.001
2/29	0.001	7/26	0.007	11/14	0.003
3/9	0.004	8/3	0.008	12/13	0.005
3/10	<0.0008	8/4	0.005	12/14	0.004
3/11	<0.0008	8/5	0.003	12/15	0.005
3/12	0.004	8/6	0.002	12/16	0.004
3/13	0.002	8/7	0.010	12/17	0.003
3/14	0.001	8/8	0.003	12/18	0.003
3/15	0.002	8/9	0.007	12/19	0.003
3/23	0.010	8/17	0.004	12/27	0.003
3/24	0.005	8/18	0.006	12/28	0.003
3/25	<0.0008	8/19	0.004	12/29	0.004
3/26	<0.0008	8/20	0.006	12/30	0.005
3/27	<0.0008	8/21	0.006	12/31	0.003
3/28	0.004	8/22	0.006		
3/29	0.004	8/23	0.005	Average	0.004

APPENDIX K

TABLE 6

NITROGEN IN THE AIR AT THE MC LANE RANCH - 1972

Units of ppm of Air

<u>Date</u>	<u>NO₂ in Air</u>
3/9	<0.0008
3/10	<0.0008
3/11	0.002
3/12	<0.0008
3/13	<0.0008
3/14	<0.0008
3/15	0.0009
4/6	0.009
4/7	0.007
4/8	0.007
4/9	0.014
4/10	0.006
4/11	0.011
4/12	0.006
4/20	0.003
4/21	0.004
4/22	0.002
4/23	0.002
4/24	0.002
4/25	0.002
4/26	0.001
Average	0.004

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