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EVALUATION OF RADIOLOGICAL CONDITIONS
IN THE VICINITY OF HANFORD FOR 1968
APPENDICES

May 1970

AEC RESEARCH &
DEVELOPMENT REPORT

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UC-41, Health
and Safety

EVALUATION OF RADIOLOGICAL CONDITIONS
IN THE VICINITY OF HANFORD FOR 1968
APPENDICES

By

The Environmental Evaluations Staff

W. L. Fisher, Manager

Edited by C. B. Wilson

Radiation Protection Department

Technical Services Division

May 1970

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Preface

This supplemental report is a compilation of results obtained from both radiochemical analyses of environmental samples and from radiological measurements made in the Hanford environs during 1968. The radiological significance of these data is discussed in the parent report (BNWL-1341).

The term "analytical limit" as used in this report is the concentration at which the laboratory can measure a 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.

March, 1970

C. B. Wilson
Environmental Evaluations

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APPENDIX A
RADIONUCLIDES IN COLUMBIA RIVER WATER

APPENDIX A
TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER AT
PRIEST RAPIDS DAM/PRIEST RAPIDS GAUGE STATION (Cumulative Samples) - 1968

<u>Date</u>	<u>Alpha</u> (pCi/l)	<u>Beta</u> (c/m/ml)
Analytical Limit	1	.005
<u>Priest Rapids Dam</u>		
12-27-67/1-2-68	-	-
1-2/1-8	-	-
1-8/1-15	-	-
1-15/1-22	-	.005
1-22/1-29	1.6	.005
1-29/2-5	-	-
2-5/2-13	-	-
2-13/2-19	-	.005
2-19/2-26	1.4	-
2-26/3-4	-	-
3-4/3-11	-	-
3-11/3-18	1.0	-
3-18/3-25	-	-
3-25/4-1	-	-
4-1/4-8	-	-
<u>Priest Rapids Gauge Station</u>		
2-9/2-13	-	-
2-13/2-19	-	-
2-19/2-26	-	-
2-26/3-4	-	-
3-4/3-11	-	-
3-11/3-18	-	-
3-18/3-25	-	-
3-25/4-1	-	-
4-1/4-8	-	-
4-8/4-15	1.1	-
4-15/4-22	-	-
4-22/4-29	-	.009
4-29/5-6	1.8	-
5-6/5-13	-	-
5-13/5-20	-	-
5-20/5-27	-	-
5-27/6-3	-	-
6-3/6-10	1.0	-
6-10/6-17	-	-
6-17/6-24	-	-

Results less than analytical limit are indicated
by a (-).

No entry indicates no analysis made.

APPENDIX A
TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER
AT PRIEST RAPIDS DAM/PRIEST RAPIDS GAUGE STATION
(Monthly Composites - Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>Alpha</u>	<u>³H</u>	<u>⁹⁰Sr</u>	<u>⁹⁵Zr-Nb</u>	<u>¹⁰⁶Ru</u>	<u>⁹⁹Tc</u>
Analytical Limit	1	1000	0.5	5	5	5
<u>Priest Rapids Dam</u>						
12-27-67/1-29-68		2300	0.53	-	-	
1-29/2-26		2500	-	-	-	
2-26/3-25		1500	-	-	-	
<u>Priest Rapids Gauge Station</u>						
2-9/2-26		-	-	5.0	-	
2-26/3-25		2100	-	-	-	
3-25/4-29		-	-			
4-29/5-27						
5-27/6-24			-			
*7-22-68	0.59	3700	-	-	-	-
8-5/8-26	-	2500	-	-	-	-
8-26/9-23	-	1100	-	-	-	-
*9-20/10-21	-	1700	-	-	-	-
*10-21/11-25	-	1800	-	-	-	-
11-19/12-23	-	1200	0.68	-	-	-

* Grab samples were taken on these dates.

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 3

CONCENTRATIONS OF RADIONUCLIDES IN COLUMBIA RIVER AT
RINGOLD FAR SHORE (Grab Samples) - 1968

Units of pCi/l of Water

Date	<u>24Na</u>	<u>32P</u>	<u>51Cr</u>	<u>56Mn</u>	<u>64Cu</u>	<u>65Zn</u>	<u>69mZn</u>	<u>72Ga</u>	<u>76As</u>	<u>122Sb</u>	<u>239Np</u>	<u>RE+Y</u>
Analytical Limit	35	6	70	50	20	20	70	70	5	5	10	5
1-23	2200	98	1300	260	1100	75	-	-	330	64	970	180
2-27	2800	110	1600	400	1400	94	120	-	450	120	1100	380
3-26	2400	36	900	2100	1100	76	130	29	370	150	590	330
												13

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 4

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER
AT RICHLAND (Grab Samples) - 1968
Units of pCi/l of Water

Date	<u>24Na</u>	<u>32P</u>	<u>46Sc</u>	<u>51Cr</u>	<u>54Mn</u>	<u>56Mn</u>	<u>64Cu</u>	<u>65Zn</u>	<u>69mZn</u>	<u>72Ga</u>	<u>76As</u>	<u>122Sb</u>	<u>131I</u>	<u>239Np</u>	<u>RE+Y</u>	<u>Alpha</u>
Analytical Limit	35	6	20	70	2	50	20	20	70	70	5	5	2	10	5	1
1-8	1400	170		2400	15	24	760	64			390	120	11	600	88	1.6
2-13	2200	190		1500	13	140	1100	75			460	79	13	1000	270	1.1
3-11	2600	110		1500	17	550	2100	84			510	150	11	1100	420	-
4-8	3900	410		2400	12	110	1300	150			590	380	13	1300	420	2.5
5-14	2900	300		1900	11	540	1600	130			310	300		1200	560	2.7
6-10	800	38	91	570			490	34			73	87		330	160	-
7-8	700		46	570		410	640	30	-	-	90	62		340	21	-
8-12	1000		580	1400		62	890	380	-	-	100	52		670	110	
9-9	1900		180	1700		-	720	140	-	-	210	97		920	270	
10-14	1700		190	1600			1000	120	-	110	210	63		900	200	
11-11	3600		480	3500		-	2000	220	-	220	370	180		1800	490	
12-9	3900		250	3400		370	1900	140	-	-	580	220		2000	440	

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 5

CONCENTRATIONS OF RADIONUCLIDES IN
COLUMBIA RIVER AT RICHLAND (Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	20	70	20	2
12-27-67/1-2-68	96	120	2300	110	4.0
1-2/1-8	86	110	2400	90	7.8
1-8/1-15	67	90	2400	79	6.6
1-15/1-22	130	100	3000	120	15
1-22/1-29	88	110	1700	76	15
1-29/2-5	92	85	1500	74	17
2-5/2-13	97	100	1900	78	19
2-13/2-19	110	71	1400	56	9.2
2-19/2-26	220	97	3300	99	19
2-26/3-4	160	88	2000	100	-
3-4/3-11	140	60	1800	120	15
3-11/3-18	150	120	1600	120	7.1
3-18/3-25	130	74	1300	110	4.3
3-25/4-1	97	42	540	75	3.1
4-1/4-8	220	170	2100	97	15
4-8/4-15	160	73	1500	120	13
4-15/4-22	92	62	940	100	5.4
4-22/4-29	88	89	2200	140	12
5-1/5-6	200	120	2400	160	5.5
5-6/5-13	250	150	2600	170	6.1
5-13/5-20	54	120	2000	140	14
5-20/5-24		370	1200	110	
5-24/5-27	39	200	890	100	2.3
5-27/6-3	46	42	940	85	5.4
6-3/6-10	23	46	870	91	3.5
6-10/6-17	21	84	280	37	-
6-17/6-20 + 6-21/6-24	12	54	330	29	3.8
6-20/6-21					25
6-24/7-1	15	35	560	34	2.3
7-1/7-8	18	21	580	40	2.4
7-8/7-15	29	19	350	29	2.5
7-15/7-22	19	-	560	32	2.6
7-22/8-5	59	60	900	43	2.8
8-5/8-12	31	59	710	48	2.2
8-12/8-19	69	58	1400	51	7.0
8-19/8-26	53	46	1000	48	3.9

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 5 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN
COLUMBIA RIVER AT RICHLAND (Cumulative Samples) - 1968

Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	20	70	20	2
8-26/9-3	66	60	1300	84	4.4
9-3/9-9	69	560	1500	150	3.6
9-9/9-16	34	31	790	37	2.5
9-16/9-23	68	140	1100	110	3.7
9-23/9-30	85	160	1500	81	7.1
9-30/10-7	93	94	1500	94	7.9
10-7/10-14	63	52	1000	88	4.4
10-14/10-21	120	69	1600	72	7.0
10-21/10-28	110	100	2000	87	9.5
10-28/11-4	100	90	2200	47	7.9
11-4/11-11	62	110	1600	85	6.1
11-11/11-18	98	78	1900	62	7.7
11-18/11-25	110	170	1700	62	7.4
11-25/12-2	90	94	1500	81	6.0
12-2/12-9	170	140	2000	100	13
12-9/12-16	120	81	1600	84	11
12-16/12-23	93	85	1500	78	8.2
12-23/12-30	82	120	900	110	5.5

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 6

CONCENTRATIONS OF RADIONUCLIDES IN THE COLUMBIA RIVER
AT RICHLAND (Monthly Composite Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>³H</u>	<u>⁵⁴Mn</u>	<u>⁹⁰Sr</u>	<u>⁹⁵Zr-Nb</u>	<u>⁹⁹Tc</u>	<u>¹⁰⁶Ru</u>	<u>Alpha</u>
Analytical Limit	1000	2	0.5	5	5	5	1
12-27-67/1-29-68	1900	3.5	0.59	7.4	10	-	
1-29/2-26	-	1.6	0.60	-	6.4	-	
2-26/3-25	1300		-	12	19	-	
3-25/4-29			0.52				
5-27/6-24			-				
6-24/7-22			-	7.1	40	-	-
7-29/8-26	3200		-	-	-	-	-
8-26/9-23	1300		-	-	-	-	-
9-30/10-21	1500		1.1	-	5.2	-	-
10-21/11-25	1500		-	-	-	-	-
11-25/12-23	2400		0.94	5.8	-	-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 7

CONCENTRATIONS OF RADIONUCLIDES IN COLUMBIA RIVER
AT McNARY DAM (Cumulative Samples) - 1968

Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
12-29-67/1-5-68	44	1500	60	2.4
1-5/1-12	42	1100	57	2.8
1-12/1-19	38	1400	66	2.6
1-19/1-26	76	1700	76	5.2
1-26/2-2	19	960	65	7.0
2-2/2-9	47	900	51	7.3
2-9/2-16	47	980	52	5.2
2-16/2-23	48	990	96	5.3
2-23/3-1	41	770	37	7.0
3-1/3-8	27	490	21	5.9
3-8/3-15	70	760	56	4.1
3-15/3-22	53	840	48	4.4
3-22/3-29	60	760	110	2.7
3-29/4-5	52	540	73	5.2
4-5/4-12	27	390	48	2.8
5-26/5-29	42	270	46	-
5-31/6-7	14	260	27	-
6-7/6-14	-	41	28	2.3
6-14/6-21	17	190	50	2.5
6-21/6-28	23	330	56	2.4
6-28/7-5	16	470	64	-
7-5/7-12	21	400	65	-
7-12/7-19	-	170	34	-
7-19/7-26	14	400	46	-
7-26/8-2	-	640	57	-
8-2/8-9	36	640	45	-
8-9/8-16	28	450	62	2.1
8-16/8-23	36	850	38	3.0
8-23/8-30	20	710	30	4.0
8-30/9-6	26	810	29	6.1
9-6/9-13	37	1000	29	2.8
9-13/9-20	30	880	42	2.2
9-20/9-27	28	720	40	-
9-27/10-4	25	840	-	3.1
10-4/10-11	46	870	45	-
10-11/10-18	45	590	34	2.8
10-18/10-25	35	750	31	3.5

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 7 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN COLUMBIA RIVER
AT McNARY DAM (Cumulative Samples) - 1968

Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
10-25/11-1	74	1300	49	3.2
11-1/11-8	57	1000	34	4.3
11-8/11-15	48	810	89	3.0
11-15/11-22	73	1200	59	2.4
11-22/11-27	83	1200	72	2.8
11-27/12-6	57	710	61	11
12-6/12-13	71	1000	43	10
12-13/12-20	47	860	45	7.6
12-20/12-27	46	910	65	4.2

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 8

CONCENTRATIONS OF RADIONUCLIDES IN COLUMBIA RIVER AT
BONNEVILLE DAM Bi-Weekly Composite (Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
12-26-67/1-9-68	14	1500	36	-
1-9/1-23	10	610	23	-
1-23/2-6	12	780	29	4.2
2-6/2-20	18	670	32	3.9
2-20/3-5	18	460	34	3.5
3-5/3-19	20	550	45	3.0
3-19/4-2	22	510	42	3.5
4-2/4-16	19	350	41	-
4-16/4-30	39	590	42	3.3
4-30/5-14	8.4	800	41	8.1
5-14/5-28	27	540	42	-
5-28/6-11	9.6	360	46	-
6-11/6-25	16	190	31	-
8-9/8-27	-	300	-	-
8-27/9-10	7.8	410	-	-
9-10/9-24	9.7	430	-	-
9-24/10-8	10	410	-	-
10-8/10-22	13	400	-	2.5
10-22/11-5	9.3	360	-	-
11-5/11-19	9.9	260	-	-
11-19/12-3	21	520	-	5.1
12-7/12-17	18	450	-	7.9
12-17/12-31	16	620	29	4.4

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 9

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN
THE COLUMBIA RIVER AT RINGOLD FAR SHORE (Grab Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁵⁶Mn</u>	<u>⁶⁴Cu</u>	<u>⁶⁵Zn</u>	<u>^{69m}Zn</u>	<u>⁷²Ga</u>	<u>⁷⁶As</u>	<u>¹²²Sb</u>	<u>²³⁹Np</u>	<u>RE+Y</u>
1-23	410	19	240	49	210	14	<13	<13	63	12	180	34
2-27	350	13	200	50	180	12	14	<8.7	56	15	140	47
3-26	680	10	250	600	320	22	37	8.2	100	41	170	93

APPENDIX A
TABLE 10

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN THE
COLUMBIA RIVER AT RICHLAND (Grab Samples) - 1968

Units of Ci/day

<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁵⁴Mn</u>	<u>⁵⁶Mn</u>	<u>⁶⁴Cu</u>	<u>⁶⁵Zn</u>	<u>^{69m}Zn</u>	<u>⁷²Ga</u>	<u>⁷⁶As</u>	<u>¹²²Sb</u>	<u>¹³¹I</u>	<u>²³⁹Np</u>	<u>RE+Y</u>
1-8	260	33		460	2.8	4.6	150	12			75	22	2.1	120	17
2-13	500	44		350	2.9	31	250	17			110	18	2.9	230	63
3-11	880	38		510	5.9	190	720	29			170	50	3.8	360	140
4-8	960	100		600	2.9	27	320	37			140	95	3.2	320	100
5-14	870	88		580	3.3	160	490	40			93	89		340	170
6-10	600	28	68	420			370	25			55	65		240	120
7-8	420		28	350		250	390	18	<43	<43	56	38		210	13
8-12	310		170	410		18	260	110	<21	<21	30	15		200	32
9-9	500		46	440		<13	180	35	<18	<18	55	25		230	68
10-14	420		46	380			240	30	<17	26	51	15		220	49
11-11	640		86	620		<8.8	350	40	<12	38	66	31		320	86
12-9	790		50	690		75	380	28	<14	<14	120	45		400	88

No entry indicates no analysis made.

APPENDIX A

TABLE 11

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN
COLUMBIA RIVER WATER AT RICHLAND (Cumulative Samples) - 1968
 Units of Curies/day

<u>Date</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
12-27-67/1-2-68	19	24	460	22	0.79
1-2/1-8	16	20	450	17	1.4
1-8/1-15	13	17	450	15	1.3
1-15/1-22	22	18	520	20	2.6
1-22/1-29	17	21	340	15	3.0
1-29/2-5	20	18	320	16	3.6
2-5/2-13	21	23	420	17	4.0
2-13/2-19	22	14	270	11	1.9
2-19/2-26	31	14	470	14	2.7
2-26/3-4	22	12	280	14	<0.28
3-4/3-11	37	16	490	32	4.2
3-11/3-18	47	38	520	38	2.2
3-18/3-25	36	20	360	29	1.2
3-25/4-1	25	11	140	19	0.79
4-1/4-8	53	42	520	23	3.6
4-8/4-15	34	16	320	26	2.8
4-15/4-22	30	20	310	34	1.8
4-22/4-29	17	18	430	28	2.3
5-1/5-6	44	25	510	34	1.2
5-6/5-13	54	32	550	37	1.3
5-13/5-20	14	32	510	36	3.6
5-20/5-24		150	460	45	
5-24/5-27	16	83	370	35	1.0
5-27/6-3	21	19	440	40	2.5
6-3/6-10	13	25	480	50	2.0
6-10/6-17	15	63	210	28	<1.5
6-17/6-24	8.5	40	240	21	4.9
6-24/7-1	10	24	380	23	1.6
7-1/7-8	12	14	380	26	1.6
7-8/7-15	20	13	240	20	1.7
7-15/7-22	11	<12	320	19	1.5
7-29/8-5	19	19	290	14	0.90
8-5/8-12	10	19	220	15	0.70
8-12/8-19	16	14	340	12	1.7
8-19/8-26	13	11	250	12	0.94

Results less than analytical limit are indicated by a (-).
 No entry indicates no analysis made.

APPENDIX A
TABLE 11 (Continued)

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN
COLUMBIA RIVER WATER AT RICHLAND (Cumulative Samples) - 1968
Units of Curies/day

<u>Date</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
8-26/9-3	17	16	330	22	1.2
9-3/9-9	15	120	320	32	0.76
9-9/9-16	7.7	6.9	180	8.2	0.56
9-16/9-23	17	35	280	27	0.92
9-23/9-30	18	35	330	18	1.5
9-30/10-7	20	20	320	20	1.7
10-7/10-14	12	9.8	190	17	0.83
10-14/10-21	22	13	280	13	1.3
10-21/10-28	18	17	320	14	1.6
10-28/11-4	19	17	400	8.7	1.5
11-4/11-11	12	22	310	17	1.2
11-11/11-18	18	14	350	11	1.4
11-18/11-25	22	35	340	12	1.5
11-25/12-2	19	20	310	17	1.3
12-2/12-9	33	27	390	20	2.5
12-9/12-16	25	17	320	17	2.2
12-16/12-23	22	20	360	18	1.9
12-23/12-30	21	32	230	28	1.4

Results less than analytical limit are indicates by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 12

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN COLUMBIA
RIVER WATER AT McNARY DAM (Cumulative Samples) - 1968
Units of Curies/day

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
12-29-67/1-5-68	14	460	19	0.75
1-5/1-12	13	320	17	0.85
1-12/1-19	11	400	18	0.72
1-19/1-26	21	470	21	1.4
1-26/2-2	6	310	21	2.3
2-2/2-9	14	280	16	7.3
2-9/2-16	15	310	16	1.7
2-16/2-23	18	360	35	2.0
2-23/3-1	16	310	15	2.8
3-1/3-8	10	180	7.8	2.2
3-8/3-15	34	370	27	2.0
3-15/3-22	22	350	20	1.8
3-22/3-29	22	280	40	1.0
3-29/4-5	20	210	28	2.0
4-5/4-12	9.0	130	16	1.0
5-26/5-29	28	180	31	
5-31/6-7	9.9	190	20	1.4
6-7/6-14	6.1	42	28	2.3
6-14/6-21	17	180	48	2.4
6-21/6-28	21	300	51	2.2
6-28/7-5	12	370	50	<1.6
7-5/7-12	16	300	49	<1.5
7-12/7-19	<4.5	120	25	<1.5
7-19/7-26	8.1	230	26	<1.1
7-26/8-2	<2.4	260	23	<0.80
8-2/8-9	14	250	17	<0.77
8-9/8-16	8.9	150	20	0.68
8-16/8-23	11	260	11	0.89
8-23/8-30	7.2	260	11	1.4
8-30/9-6	8.2	250	9.2	1.9
9-6/9-13	11	290	8.4	0.79
9-13/9-20	8.1	240	11	0.60
9-20/9-27	9.9	250	14	<0.69
9-27/10-4	7.6	260	<6.1	0.95
10-4/10-11	13	240	12	<0.56
10-11/10-18	12	160	9.3	0.78
10-18/10-25	9.1	190	7.9	0.91

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 12 (Continued)ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN COLUMBIA
RIVER WATER AT McNARY DAM (Cumulative Samples) - 1968

Units of Curies/day

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
10-25/11-1	21	350	14	0.89
11-1/11-8	16	280	9.3	1.2
11-8/11-15	14	240	27	0.90
11-15/11-22	22	350	18	0.73
11-22/11-27	26	380	23	0.89
11-27/12-6	18	230	20	3.6
12-6/12-13	21	290	13	3.0
12-13/12-20	15	280	15	2.5
12-20/12-27	16	310	22	1.4

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 13

ESTIMATED RATE OF TRANSPORT OF RADIONUCLIDES IN COLUMBIA
RIVER WATER AT BONNEVILLE DAM (Bi-weekly Composite Cumulative Samples) - 1968

Units of Curies/day

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
12-26-67/1-9-68	4.6	510	12	<0.66
1-9/1-23	3.0	180	6.9	<0.60
1-23/2-6	4.1	260	10	1.4
2-6/2-20	6.1	230	11	1.3
2-20/3-5	8.3	210	16	1.6
3-5/3-19	9.6	260	21	1.4
3-19/4-1	8.7	200	17	1.4
4-1/4-16	7.2	130	15	<0.8
4-16/4-30	9.6	140	10	0.8
4-30/5-14	2.9	280	14	2.8
5-14/5-27	14	290	22	<1.1
5-28/6-11	7.6	290	37	<1.6
6-11/6-25	16	180	30	<1.9
8-9/8-27	<1.9	96	<6.3	<0.63
8-27/9-10	2.6	140	<6.6	<0.66
9-10/9-24	2.9	130	<6.0	<0.60
9-24/10-8	3.2	130	<6.2	<0.62
10-8/10-22	3.8	120	<5.8	0.73
10-22/11-5	2.8	110	<5.9	<0.59
11-5/11-19	3.2	80	<6.4	<0.64
11-19/12-3	7.3	180	<6.8	1.7
12-3/12-17	6.1	150	<6.7	2.7
12-17/12-31	6.3	240	11	1.7

Results less than analytical limit are indicates by a (-).
No entry indicates no analysis made.

APPENDIX A
TABLE 14

BETA ACTIVITY IN THE
COLUMBIA RIVER AT RINGOLD FAR SHORE - 1968
Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>
Analytical Limit	0.02		0.02
1-2-68	5.0	7-2	<0.07
1-9	5.2	7-9	0.96
1-23	11	7-16	0.68
1-30	7.4	7-23	0.54
2-6	4.8	7-30	3.2
2-13	4.2	8-6	0.54
2-20	3.9	8-13	3.6
2-27	5.2	8-20	3.3
3-5	6.8	8-27	4.6
3-12	4.6	9-3	8.4
3-19	1.8	9-10	4.6
3-26	5.2	9-17	4.6
4-2	5.0	9-24	4.7
4-9	6.4	10-1	3.6
4-16	1.5	10-8	3.1
4-23	7.4	10-22	5.7
4-30	8.4	10-29	5.0
5-7	9.4	11-6	3.1
5-14	6.6	11-12	7.0
5-21	4.3	11-19	5.8
5-28	2.6	11-26	2.2
6-4	<0.10	12-3	5.8
6-11	0.82	12-10	3.6
6-18	0.57	12-17	5.4
6-25	0.84	12-23	6.4
		12-31	3.3

Results less than analytical limit are indicated
by a (-).

No entry indicates no analysis made.

APPENDIX A
TABLE 15BETA ACTIVITY IN THE
COLUMBIA RIVER AT RICHLAND - 1968
Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>
Analytical Limit	0.02
1-8-68	5.1
2-13	3.9
3-11	5.8
4-8	8.9
5-14	2.6
5-24	1.2
7-8	1.2
8-12	4.8
9-9	3.3
10-14	3.4
11-11	8.2
12-9	8.8

Results less than analytical
limit are indicated by a (-).

No entry indicates no analysis
made.

APPENDIX B
RADIONUCLIDES IN DRINKING WATER

APPENDIX B
TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN RICHLAND
DRINKING WATER (Grab Samples) - 1968

Units of pCi/l of Water

Date	<u>²⁴Na</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁶⁴Cu</u>	<u>⁷⁶As</u>	<u>¹²²Sb</u>	<u>¹³¹I</u>	<u>¹³³I</u>	<u>²³⁹Np</u>	<u>RE+Y</u>
Analytical Limit	35	6	20	70	20	5	5	2	10	10	5
1-16-68	2500	94		3500	500	370	150			810	50.6
2-20	3200	22		3400	560	320	180			1600	73.7
3-19	930	29		790	240	110	73			400	12.3
4-16	1600	18		830	190	40	200	7.2	38	430	21.4
4-30								18	69		
5-21	1200	120		1200	400	120	240	7.1	44	580	131
6-18	480	9.3	8.4	390	97	-	57			210	-
7-16	470	-	-	360	160	22	40	3.2	16	210	31.7
8-20	-	-	-	-	-	-	-	-	-	-	-
9-18	1700	28	21	1500	380	74	89	12	59	860	17.0
10-15	1000	62	25	960	260	74	48	4.0	27	460	30.6
11-19	1900	86	38	2500	430	170	110	12	82	830	96.4
12-17	2600	61	52	2200	660	220	88	17	87	1000	41.3

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN RICHLAND
DRINKING WATER (Cumulative Samples) - 1968

Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
12/27/67-1/2/68	66.	1900	59.	5.2
1/2-1/8	71.	2200	71.	7.4
1/8-1/15	37.	1800	54.	5.0
1/15-1/22	63.	2300	73.	17.
1/22-1/29	31.	1600	58.	16.
1/29-2/5	20.	1500	40.	16.
2/5-2/13	19.	1800	48.	16.
2/13-2/19	13.	1300	42.	7.0
2/19-2/26	42.	2500	57.	15.
2/26-3/4	26.	2300	79.	2.1
3/4-3/11	12.	1600	58.	9.6
3/11-3/18	24.	1300	65.	8.2
3/18-3/25	31.	1100	63.	4.7
3/25-4/1	15.	990	46.	4.3
4/1-4/8	11.	520	57.	3.6
4/8-4/15	12.	1600	60.	11.
4/15-4/22	8.1	920	40.	6.3
4/22-4/29	120	2400	39.	8.0
5/1-5/6	120	2500	58.	7.8
5/6-5/13	100	2400	36.	6.1
5/13-5/20	90.		39.	9.6
5/20-5/24		1100	28.	
5/24-5/27	22.		28.	2.7
5/27-6/3	-		26.	4.2
6/3-6/10	12.		-	3.5
6/10-6/17	-		-	2.2
6/17-6/20 and	-		-	2.3
6/21-6/24	-		-	
6/20-6/21				24.
6/24-7/1	11.	570	22.	2.5
7/1-7/8	-	600	-	-
7/8-7/15	8.3	380	-	2.5
7/15-7/22	19.	490	-	-
7/22-7/29	25.	580	20.	-
7/29-8/5	22.	850	21.	3.5
8/5-8/12	13.	620	-	3.0
8/12-8/19	-	120	-	-
8/19-8/26	-	180	-	3.0

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN RICHLAND
DRINKING WATER (Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
8/26-9/3	-	380	-	2.4
9/3-9/9	8.2	1400	-	4.6
9/9-9/16	9.5	1200	-	6.0
9/16-9/23	10.	980	-	5.1
9/23-9/30	17.	1200	-	5.6
9/30-10/7	10.	1600	-	6.4
10/7-10/14	11.	860	21.	4.4
10/14-10/21	28.	1600	-	4.3
10/21-10/28	30.	2000	-	8.3
10/28-11/4	21.	2000	28.	5.7
11/4-11/11	28.	1600	29.	5.6
11/11-11/18	43.	2100	40.	6.7
11/18-11/25	61.	1700	39.	4.9
11/25-12/2	19.	1200	36.	4.4
12/2-12/9	60.	2100	53.	14.
12/9-12/16	37.	1600	49.	11.
12/16-12/23	38.	1500	48.	9.7
12/23-12/30	30.	1000	65.	4.7

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 3

CONCENTRATIONS OF RADIONUCLIDES IN PASCO
DRINKING WATER (Grab Samples) - 1968

Units of pCi/l of Water

<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁴⁶Sc</u>	<u>⁵¹Cr</u>	<u>⁶⁴Cu</u>	<u>⁷⁶As</u>	<u>¹²²Sb</u>	<u>¹³¹I</u>	<u>¹³³I</u>	<u>²³⁹Np</u>	<u>RE+Y</u>
Analytical Limit	35	6	20	70	20	5	5	2	10	10	5
1-2-68	56	49		1400	-	27	26			160	13
2-6	140	31		1500	20	29	58			480	12
3-5	340	34		2000	-	44	78			470	28
4-2	310	11		480	78	22	81			180	11
5-7	950	24		2300	-	33	450			700	44
5-24			130	510						290	
6-4	350	8.4	6.1	550	42	13	86			200	11
7-2	470	14	6.0	440	88	9.3	44	2.4	18	190	22
8-6	480	18	-	610	120	50	200	3.5	20	380	32
9-3	370	9.6	-	1100	110	22	51	4.3	16	400	-
10-8	290	32	-	830	100	66	43	6.8	18	420	13
11-5	230	33	23	1800	-	34	52	6.4	10	410	16
12-3	160	100	40	1500	-	48	59	4.4	6.9	350	39

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 4

CONCENTRATIONS OF RADIONUCLIDES IN PASCO
DRINKING WATER (Cumulative Samples) - 1968

Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
12-27-67/1-2-68	41	2700	54	4.0
1-2/1-8	46	1700	58	5.3
1-8/1-15	45	2200	50	4.8
1-15/1-22	34	2300	62	10
1-22/1-29	45	1600	53	16
1-29/2-5	16	1300	49	16
2-5/2-13	17	1500	36	13
2-13/2-19	20	1300	50	11
2-19/2-26	31	2000	60	9.9
2-26/3-4	24	2000	58	-
3-4/3-11	16	1800	53	9.9
3-11/3-18	9.1	1200	50	6.5
3-18/3-25	12	940	50	3.4
3-25/4-1	16	960	52	4.1
4-1/4-8	14	450	41	5.6
4-8/4-15	7.8	1200	28	10
4-15/4-22	13	3900	160	5.2
4-22/4-29	27	1800	28	8.0
4-29/5-6	25	2200	56	7.0
5-6/5-13	28	2100	28	9.4
5-13/5-20	8.0	-	30	9.8
5-20/5-24	-	1000	-	-
5-24/5-27	6.4	-	-	2.7
5-27/6-3	6.0	-	-	3.9
6-3/6-10	-	-	-	2.8
6-10/6-17	-	-	-	-
6-17/6-24	-	-	-	5.1
6-24/7-1	-	470	-	2.3
7-1/7-8	-	430	-	2.5
7-8/7-15	-	300	-	2.4
7-15/7-22	15	340	-	-
7-22/7-29	-	400	-	-
7-29/8-5	15	650	-	2.6
8-5/8-12	8.4	550	-	2.2
8-12/8-19	12	1100	-	4.1
8-19/8-26	7.0	870	-	3.1

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 4 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASCO
DRINKING WATER (Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
8-26/9-3	-	980	-	4.0
9-3/9-9	15	1200	-	3.2
9-9/9-16	-	1200	-	5.0
9-16/9-23	-	1100	-	3.3
9-23/9-30	6.3	1200	-	6.2
9-30/10-7	22	1500	-	5.2
10-7/10-14	10	750	-	3.0
10-14/10-21	21	1200	-	4.5
10-21/10-28	23	1900	-	10
10-28/11-4	20	1500	-	4.2
11-4/11-11	28	1300	21	4.6
11-11/11-18	34	2000	-	4.7
11-18/11-25	73	1700	26	4.7
11-25/12-2	69	1000	35	3.5
12-2/12-9	100	1800	46	13
12-9/12-16	86	1600	40	10
12-16/12-23	59	1300	49	9.3
12-23/12-30	44	1000	50	3.8

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 5

CONCENTRATIONS OF ^{90}Sr IN RICHLAND AND
PASCO DRINKING WATER (Composited Cumulative Samples) - 1968
Units of $\mu\text{Ci/l}$ of Water

<u>Richland</u>		<u>Pasco</u>	
<u>Date</u>	<u>^{90}Sr</u>	<u>Date</u>	<u>^{90}Sr</u>
Analytical Limit	0.5	Analytical Limit	0.5
12-27-67/1-29-68	0.62	12-27-67/1-29-68	0.49
1-29/2-26	0.68	1-29/2-26	<0.50
2-26/3-25	0.68	2-26/3-25	<0.50
3-25/4-29	<0.50	3-25/4-29	<0.50
5-27/6-24	<0.50	5-27/6-24	<0.50

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 6

CONCENTRATIONS OF RADIONUCLIDES IN KENNEWICK
DRINKING WATER (Grab Samples) - 1968

Units of pCi/l of Water										
<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁴Cu</u>	<u>⁶⁵Zn</u>	<u>⁷⁶As</u>	<u>¹²²Sb</u>	<u>¹³¹I</u>	<u>²³⁹Np</u>	<u>RE+Y</u>
Analytical Limit	35	6	70	20	20	5	5	2	10	5
1-6-68	100	10	820	29	-	23	11	-	50	8.8
2-20	78	-	170	26	-	6.8	-	-	43	1.7
3-19	110	7.1	380	35	-	9.4	12	-	49	12
4-16	290	20	540	38	44	22	29	-	81	18
5-21	170	27	760	61	-	21	56	-	94	
6-18	68	9.1	200	38	-	9.9	16	-	27	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 7

CONCENTRATIONS OF RADIONUCLIDES IN 100-N
DRINKING WATER (Grab Samples) - 1968

Units of pCi/l of Water

Date	²⁴ Na	³² P	⁴⁶ Sc	⁵¹ Cr	⁵⁶ Mn	⁶⁴ Cu	^{69m} Zn	⁷² Ga	⁷⁶ As	⁹⁵ Zr-Nb	¹²² Sb	¹³¹ I	¹³³ I	¹⁴⁰ Ba-La	²³⁹ Np	RE+Y
Analytical Limit	35	6	20	70	50	20	70	70	5	5	5	2	10	0.5	10	5
1-3-68	4800	9.2		370	1800	1600	-	-	81		130				880	37
2-14	5900	15		2500	1500	1400	-	-	120		130				1500	140
3-6	8700	14		4000	4600	1500	92	-	33		260				1800	66
4-10	4700	21		3600	12000	1300	150	-	44		410				880	55
5-8	7800	-		3200	6200	1500	76	-	26		620				1600	77
7-3	530	7.1	-	420	310	120	-	-	-	-	36	1.9	24	<20	140	10
8-7	970	-	-	1000	240	180	-	-	-	-	24	1.9	40	<20	200	3.8
9-4	4000	-	-	1800	620	650	-	-	24	-	100	10	120	<20	970	10
10-9	2200	8.2	-	880	670	600	-	-	14	-	50	5.1	84	<20	590	14
11-6	4100	9.5	36	1500	1300	1200	-	71	39	-	77	7.5	99	<20	870	80
12-4	12000	32	58	3800	5800	3000	-	110	52	-	340	11	160	69	2200	120

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 8

CONCENTRATIONS OF RADIONUCLIDES IN 100-N
DRINKING WATER (Cumulative Samples) - 1968
Units of pCi/l of Water

<u>Date</u>	<u>³²P</u>	<u>⁵¹Cr</u>	<u>⁶⁵Zn</u>	<u>¹³¹I</u>
Analytical Limit	6	70	20	2
2-5	8.1	2900	66	24
2-5/2-13	8.3	2600	65	18
2-13/2-20	8.0	3200	79	19
2-20/2-27	17	5100	150	56
2-27/3-5	15	4500	120	3.1
3-5/3-12	6.5	2400	60	9.3
3-12/3-19	-	2000	74	7.5
3-19/3-26	-	2000	95	6.4
3-26/4-2	8.2	1400	60	3.9
4-2/4-9	-	1900	77	20
7-2/7-9	-	480	-	-
7-9/7-16	-	200	-	-
7-16/7-23	-	480	-	-
7-23/7-30	-	1100	-	5.3
7-30/8-6	-	820	-	3.0
8-6/8-13	-	920	-	2.5
8-13/8-20	-	2300	38	7.9
8-20/8-27	-	1900	23	8.2
8-27/9-3	6.1	2600	32	6.4
9-3/9-9	-	2000	40	7.7
9-9/9-17	-	2000	39	11
9-17/9-24	-	1200	39	5.9
9-24/10-1	-	2300	39	11
10-1/10-8	-	1600	40	3.8
10-8/10-15	-	1400	34	4.4
10-15/10-22	7.5	3300	47	10
10-22/10-29	11	3600	59	14
10-29/11-5	9.2	3000	52	8.3
11-5/11-12	11	3100	64	12
11-12/11-19	17	3600	85	17
11-19/11-26	15	2200	69	9.9
11-26/12-3	11	2500	78	11
12-3/12-10	10	3500	100	20
12-10/12-17	10	2600	79	17
12-17/12-23	12	2300	80	9.2
12-23/12-30	-	1100	66	4.5

Results less than analytical limit are indicated
by a (-).

No entry indicates no analysis made.

APPENDIX B

TABLE 9

BETA ACTIVITY IN RICHLAND DRINKING WATER - 1968

Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>
Analytical Limit		0.02	
1-3-68	3.3	8-7	0.48
1-10	6.5	8-14	3.0
1-16	5.4	8-20	<0.10
1-17	5.0	8-21	<0.10
1-24	4.0	8-28	<0.10
1-31	3.9	9-4	3.4
2-7	2.2	9-11	4.6
2-13	5.4	9-18	3.9
2-20	7.1	9-25	3.4
2-21	4.8	10-2	4.8
2-28	2.7	10-10	1.2
3-6	4.4	10-15	1.7
3-13	3.7	10-16	1.8
3-19	2.0	10-23	4.0
3-20	1.6	10-30	6.4
3-27	3.1	11-6	1.7
4-3	1.8	11-13	3.2
4-10	2.5	11-15	2.5
4-16	3.1	11-18	2.6
4-17	1.5	11-19	4.3
4-24	4.6	11-20	3.8
5-1	4.1	11-22	2.0
5-8	5.9	11-25	3.6
5-15	7.8	11-27	2.0
5-21	3.1	12-2	3.3
5-22	2.5	12-4	1.8
5-30	0.92	12-6	2.3
6-5	2.2	12-9	4.6
6-12	0.58	12-11	1.4
6-18	0.98	12-13	1.4
6-19	0.80	12-16	1.5
6-26	1.0	12-17	4.6
7-3	0.90	12-18	5.1
7-10	0.76	12-20	0.86
7-16	0.70	12-23	3.7
7-17	0.86	12-27	3.6
7-24	0.54		
7-31	1.3		

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 10

BETA ACTIVITY IN PASCO DRINKING WATER - 1968

Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>
Analytical Limit		0.02			
1-2-68	0.40	3-1	0.74	6-19	0.64
1-3	0.74	3-4	1.1	6-26	0.76
1-4	0.86	3-5	1.4	7-1	0.78
1-5	0.66	3-6	1.5	7-2	0.94
1-8	0.46	3-7	1.6	7-3	0.66
1-9	0.68	3-8	1.0	7-5	1.1
1-10	0.84	3-11	1.3	7-8	1.2
1-11	0.84	3-12	1.3	7-10	0.66
1-12	0.78	3-13	1.2	7-12	2.9
1-15	0.64	3-14	1.2	7-15	0.44
1-16	0.39	3-15	1.2	7-17	0.56
1-17	0.40	3-18	1.4	7-19	0.38
1-18	0.50	3-19	1.3	7-22	0.44
1-19	1.2	3-20	0.54	7-24	0.42
1-22	1.1	3-21	1.6	7-26	0.86
1-23	0.76	3-22	0.80	7-29	1.4
1-24	1.1	3-25	0.78	7-31	0.86
1-25	1.2	3-26	1.4	8-2	1.02
1-26	2.8	3-27	1.5	8-5	1.8
1-29	1.0	3-28	1.2	8-6	0.96
1-30	0.92	3-29	0.80	8-7	0.37
1-31	0.76	4-1	1.0	8-9	1.5
2-1	1.1	4-2	0.92	8-12	0.78
2-2	0.92	4-3	0.80	8-14	0.19
2-5	1.3	4-4	0.72	8-16	1.1
2-6	1.2	4-5	0.56	8-19	2.2
2-7	1.7	4-8	0.72	8-21	0.96
2-8	1.3	4-9	1.1	8-23	0.86
2-9	1.2	4-10	1.6	8-26	1.1
2-13	0.74	4-11	1.3	8-28	2.2
2-14	1.1	4-12	1.3	8-30	0.84
2-15	0.44	4-17	1.1	9-3	0.99
2-16	1.3	4-24	2.8	9-4	1.8
2-19	0.78	5-1	3.6	9-6	0.80
2-20	0.66	5-7	2.9	9-9	1.2
2-21	1.6	5-8	3.7	9-11	1.6
2-22	0.96	5-15	5.2	9-13	1.3
2-23	1.9	5-21	1.6	9-16	1.5
2-26	1.7	5-29	0.66	9-18	1.7
2-27	1.1	6-4	1.1	9-20	1.4
2-28	1.8	6-5	1.3	9-23	0.66
2-29	0.56	6-12	0.42		

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B
TABLE 10 (Continued)

BETA ACTIVITY IN PASCO DRINKING WATER - 1968
Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>
Analytical Limit		0.02			
9-25	1.2	11-1	1.3	12-9	1.3
9-27	1.4	11-4	1.2	12-11	2.2
9-30	1.9	11-5	0.96	12-13	1.1
10-2	2.1	11-6	1.4	12-16	0.70
10-4	1.4	11-8	0.70	12-18	1.8
10-7	1.0	11-11	0.66	12-20	2.2
10-8	1.1	11-13	1.5	12-23	0.86
10-9	0.86	11-15	0.94	12-27	1.2
10-11	0.56	11-18	2.3	12-30	0.62
10-14	0.54	11-20	1.4		
10-16	1.2	11-22	1.4		
10-18	1.3	11-25	1.1		
10-21	1.2	11-27	0.96		
10-23	2.0	12-2	0.76		
10-25	1.3	12-3	0.78		
10-28	1.1	12-4	1.3		
10-30	1.8	12-6	1.4		

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX B

TABLE 11

BETA ACTIVITY IN KENNEWICK DRINKING WATER - 1968

Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>
Analytical Limit	0.02		
1-3-68	0.19	7-3	0.12
1-10	0.26	7-10	0.34
1-16	0.27	7-18	0.08
1-17	0.24	7-24	0.05
1-24	0.20	7-31	0.31
1-31	0.38	8-7	0.05
2-8	0.32	8-14	0.04
2-14	0.36	8-21	0.27
2-15	0.06	8-28	0.28
2-21	-	9-4	0.41
2-28	0.19	9-11	0.18
3-6	0.25	9-18	0.25
3-13	0.29	9-25	0.26
3-19	0.09	10-2	0.32
3-20	0.18	10-9	0.17
3-27	-	10-16	0.22
4-3	0.18	10-23	0.34
4-10	0.30	10-30	0.31
4-16	0.30	11-6	0.20
4-17	0.25	11-13	0.44
4-24	0.39	11-20	0.32
5-1	0.32	11-27	0.21
5-8	0.61	12-4	0.60
5-15	0.36	12-11	0.17
5-21	0.70	12-18	0.38
5-22	0.46		
5-29	0.18		
6-5	0.27		
6-12	0.13		
6-18	0.14		
6-19	0.09		
6-26	0.11		

Results less than analytical limit are indicated by a (-).
 No entry indicates no analysis made.

APPENDIX B
TABLE 12

BETA ACTIVITY IN 100-N DRINKING WATER - 1968
Units of c/m/ml

<u>Date</u>	<u>c/m/ml</u>	<u>Date</u>	<u>c/m/ml</u>
Analytical Limit		0.02	
1-2	8.4	7-1	1.6
1-3	9.8	7-3	0.64
1-8	2.1	7-8	0.54
1-15	20.	7-15	0.46
1-22	19.	7-22	0.88
1-29	7.2	7-29	7.4
2-5	9.2	8-7	1.2
2-13	4.0	8-12	4.6
2-14	10.	8-22	2.6
2-19	19.	9-3	5.2
2-26	11.	9-4	6.0
3-4	3.7	9-9	12.
3-6	19.	9-16	8.0
3-11	1.9	9-23	7.4
3-18	4.2	9-30	12.
3-25	1.2	10-7	8.0
4-1	1.7	10-9	0.46
4-8	20.	10-14	2.8
4-10	8.2	10-21	14.
4-15	7.4	10-28	18.
4-22	11.	11-4	8.5
4-29	37.	11-6	6.2
5-6	17.	11-11	23.
5-8	17.	11-18	19.
5-13	19.	11-25	8.0
5-20	6.2	12-2	17.
5-27	1.7	12-4	17.
6-3	1.8	12-9	10.
6-10	2.6	12-16	33.
6-17	3.9	12-23	12.
6-24	0.3		

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C

RADIONUCLIDES IN FISH AND WILD FOWL

APPENDIX C
TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF WHITEFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

Date	²⁴ Na	³² P	⁴⁰ K	⁵⁸ Co	⁶⁰ Co	⁶⁵ Zn	¹³⁷ Cs
Analytical Limit	.6	1.	1.	0.2	0.2	0.2	0.1
<u>Ringold</u>							
1/10	39.	30.	<2.7	0.35	0.67	12.	0.70
1/10	25.	85.	4.1	1.5	2.7	21.	0.65
1/10	19.	160	3.0	1.3	1.5	30.	<0.23
1/10	12.	23.	<2.6	1.0	1.8	15.	0.57
1/10	35.	150	3.8	1.4	2.3	26.	0.66
1/12		57.	2.9	2.0	2.9	25.	0.78
1/12		86	<2.6	1.3	2.4	21.	0.98
1/12		82.	3.1	2.0	3.7	27.	0.63
1/12		66.	2.9	0.32	0.54	9.5	0.39
1/12		59.	5.0	2.4	2.8	21.	0.70
1/22	28.	66.	4.4	2.4	3.5	27.	0.73
1/22	36.	100	5.7	2.1	4.2	20.	0.74
1/22	37.	66.	6.6	1.4	1.5	23.	0.52
1/22	40.	88.	5.2	1.8	3.1	29.	0.89
1/22	42.	100	7.0	1.5	2.0	26.	0.67
1/22	32.	71.	7.3	1.1	1.4	28.	0.56
1/22	32.	130	6.1	1.4	2.9	24.	0.56
1/22	32.	240	3.7	1.7	1.5	26.	0.92
1/22	44.	510	6.0	0.99	1.2	35.	0.66
1/22	43.	340	5.5	1.5	2.3	31.	0.73
2/5	36.	75.	4.3	1.3	2.8	18.	0.94
2/5	30.	150	6.0	0.99	2.0	25.	0.55
2/5	35.	48	4.0	0.87	2.0	14.	0.45
2/5	49.	150	4.2	2.5	3.9	25.	0.81
2/5	42.	230	4.3	1.8	3.2	26.	0.89
2/5	32.	77.	5.8	1.3	1.9	23.	0.63
2/5	33.	93.	4.8	1.7	2.9	27.	0.84
2/5	38.	290	4.9	0.31	1.4	16.	0.45
2/5	40.	300	4.1	1.3	2.8	22.	0.78
2/5	44.	71.	4.5	0.41	0.85	15.	0.76
2/19	22.	34.	2.8	1.8	3.5	21.	0.81
2/19	18.	32.	3.9	1.8	3.7	20.	1.0
2/19	32.	150	4.0	0.70	1.7	27.	0.61
2/19	21.	45.	4.5	0.99	2.1	18.	0.91
2/19	24.	22.	4.3	0.20	0.58	10.	0.47

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF WHITEFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

Date	²⁴ Na	³² P	⁴⁰ K	⁵⁸ Co	⁶⁰ Co	⁶⁵ Zn	¹³⁷ Cs
Analytical Limit	.6	1.	1.	0.2	0.2	0.2	0.1
<u>Ringold (Continued)</u>							
2/19	31.	48.	4.6	1.6	4.0	20.	0.80
2/19	42.	57.	3.9	0.38	1.8	7.8	0.24
2/19	27.	140	3.6	0.94	3.1	16.	0.66
2/19	22.	69.	4.8	0.75	1.4	21.	0.84
2/19	18.	220	6.0	0.53	0.97	39.	0.54
3/4	75.	32.	<2.4	1.8	4.1	17.	0.79
3/4	58.	42.	<2.9	1.2	2.6	19.	0.85
3/4	<58.	82.	<2.6	1.1	3.0	19.	0.86
3/4	<66.	160	4.8	0.57	1.0	17.	0.27
3/6	61.	21.	3.8	2.0	4.5	22.	0.90
3/6	88.	34.	<4.0	1.4	2.0	23.	1.1
3/18	<60.	34.	4.6	1.5	3.3	17.	0.82
3/18	<48.	23.	5.0	1.2	2.4	20.	0.67
3/18	77.	22.	<2.1	1.6	4.8	18.	0.83
3/18	<46.	7.5	2.9	0.47	1.8	12.	0.65
3/18	<54.	14.	3.3	0.85	2.1	19.	0.86
3/18	<40.	13.	3.7	1.2	2.4	16.	0.50
3/18	<40.	35.	3.3	0.91	1.9	19.	0.68
3/18	<53.	20.	3.5	0.99	2.2	19.	0.60
3/18	54.	11.	2.7	1.2	3.1	22.	0.69
3/18	54.	84.	4.4	0.49	1.6	17.	1.0
4/1		25.	2.9	2.0	4.4	18.	0.56
4/1		31.	3.3	1.1	2.9	24.	0.50
4/1		4.5	<2.8	0.77	1.1	14.	0.46
4/1		4.7	<3.2	0.73	1.8	15.	0.39
4/1		2.3	3.6	<0.29	0.54	9.7	<0.26
4/1		2.7	3.9	0.94	2.6	16.	0.51
4/2		16.	3.7	1.4	2.7	30.	0.56
4/2		72.	4.3	<0.26	0.33	18.	<0.23
4/2		120	3.2	1.0	2.5	23.	0.53
4/2		2.0	<2.7	<0.26	1.0	21.	<0.24
4/15	39.	16.	5.6	1.3	4.3	18.	0.70
4/15	45.	8.5	4.6	0.89	2.5	12.	0.96
4/15	44.	40.	3.6	1.1	2.7	12.	0.89
4/15	41.	22.	5.5	0.64	1.5	13.	0.64
4/15	56.	48.	7.3	0.58	2.2	18.	0.59

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF WHITEFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

Date	²⁴ Na	³² P	⁴⁰ K	⁵⁸ Co	⁶⁰ Co	⁶⁵ Zn	¹³⁷ Cs
Analytical Limit	.6	1.	1.	0.2	0.2	0.2	0.1
<u>Ringold</u> (Continued)							
4/29	120	63.	3.2	0.77	2.1	14.	0.83
4/29		6.8	6.9			5.3	0.30
4/29		63.	20.			16.	0.92
4/29	140	44.	3.4	0.67	1.6	22.	0.73
4/29		160	7.9			21.	0.46
5/13	<52.	-	2.8	<0.26	0.40	6.7	0.28
5/13	66.	96.	<3.1	<0.29	0.42	10.	0.35
5/13	83.	240	3.8	0.63	1.7	19.	0.62
5/13	110	120	5.1	<0.38	1.4	19.	0.66
5/13	100	440	<4.2	<0.38	<0.45	8.6	<0.36
5/27	11.	57.	3.7	0.72	2.6	15.	0.80
5/27	10.	240	4.8	0.39	1.2	20.	0.56
5/27	12.	140	4.0	0.60	2.6	18.	0.69
5/27	12.	130	<3.3	0.48	1.9	19.	0.70
5/27	18.	340	4.5	0.60	1.1	13.	0.34
6/10	6.0	66.	3.1	0.66	2.3	17.	0.48
6/10	3.9	4.6	3.8	<0.15	<0.20	2.0	<0.15
6/10	4.9	6.6	3.3	<0.15	<0.20	2.1	<0.14
6/10	15.	110	3.8	0.25	1.6	14.	0.64
6/10	8.2	150	<2.8	0.36	0.90	18.	0.56
6/26	12.	9.9	4.2	<0.22	<0.30	2.2	<0.22
6/26	19.	25.	3.8	0.32	1.0	10.	0.63
6/26	20.	120	4.7	0.24	0.69	6.5	0.38
6/26	29.	69.	<2.7	0.63	2.8	10.	0.99
6/26	27.	96.	3.8	0.72	2.0	17.	0.61
7/8	6.0	3.7	3.2	<0.16	<0.22	3.0	<0.16
7/8	22.	34.	2.6	0.78	2.9	15.	0.63
7/8	9.0	12.	4.2	0.32	1.3	14.	0.59
7/8	11.	30.	3.3	<0.23	1.1	6.9	0.45
7/8	15.	32.	3.6	<0.23	0.66	13.	0.51
7/22	2.6	21.	3.1	<0.15	<0.20	2.4	<0.14
7/22	2.1	28.	4.6	<0.14	0.30	4.7	<0.14
7/22	4.7	25.	4.9	<0.17	<0.23	4.1	<0.17
7/22	9.0	30.	3.3	0.24	1.2	12.	0.24
7/22	4.3	51.	5.6	0.51	1.2	15.	0.49

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF WHITEFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	.6	1.	1.	0.2	0.2	0.2	0.1

Ringold (Continued)

8/5	28.	81.	6.7	<0.18	0.72	5.0	0.26
8/5	56.	160	8.9	0.53	2.0	15.	0.46
8/5	53.	170	9.6	0.24	2.0	13.	0.43
8/5	36.	28.	6.5	0.37	1.7	18.	0.81
8/5	32.	140	7.0	0.44	1.2	21.	0.35
8/19	19.	36.	3.4	0.19	0.22	4.0	<0.11
8/19	28.	130	5.6	0.20	<0.21	7.4	0.24
8/19	45.	190	5.6	0.86	3.2	12.	0.59
8/19	45.	52	17.	4.7	2.0	15.	1.1
8/19	42.	60.	6.4	0.33	0.86	9.9	0.53
9/3	12.	42	5.0	0.52	0.47	5.2	<0.17
9/3	38.	160	6.5	0.33	0.83	14.	0.30
9/3	49.	400	11.	0.69	1.2	16.	0.27
9/3	32.	300	7.2	0.37	0.53	12.	<0.22
9/3	32.	250	8.2	0.54	0.54	18.	<0.21
9/16	47.	380	11.	0.88	1.5	22.	0.42
9/16	62.	400	7.5	1.2	1.0	15.	0.61
9/16	51.	310	13.	0.69	1.2	16.	<0.24
9/16	41.	390	8.1	0.55	0.32	9.9	0.51
9/16	47.	200	6.4	0.75	0.62	21.	0.69
10/7	19.	340	5.2	0.75	1.5	17.	0.46
10/7	19.	300	6.5	0.79	1.1	16.	0.24
10/7	14.	290	4.0	0.39	0.78	14.	0.44
10/7	15.	410	4.8	0.58	0.52	20.	0.37
10/7	27.	420	9.1	1.3	0.88	18.	0.61
10/21	54.	350	7.5	0.78	1.5	16.	0.31
10/21	28.	130	3.7	0.25	0.85	11.	0.37
10/21	23.	240	5.2	0.62	1.3	17.	0.53
10/21	43.	440	6.3	0.66	0.74	16.	<0.24
10/21	34.	360	5.8	0.58	1.0	16.	0.38
11/4	29.	220	6.6	1.2	1.2	22.	0.76
11/4	26.	260	4.8	1.1	1.8	16.	0.52
11/4	22.	64	<2.2	0.59	2.1	11.	0.46
11/4	32.	220	9.0	0.71	1.3	16.	0.40
11/4	59.	470	11.	0.45	0.81	20.	0.29

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF WHITEFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	.6	1.	1.	0.2	0.2	0.2	0.1

Ringold (Continued)

11/18	60.	410	14.	1.2	1.3	23.	0.28
11/18	51.	350	12.	1.4	1.2	21.	0.42
11/18	30.	220	7.2	0.87	0.43	15.	0.51
11/18	42.	210	8.7	0.70	0.96	18.	0.30
11/18	43.	340	6.8	1.8	3.1	16.	0.42
12/2	37.	370	7.5	1.5	0.93	24.	<0.24
12/2	23.	96.	3.0	<0.26	0.48	17.	0.46
12/2	43.	400	5.7	1.5	0.86	20.	0.57
12/2	26.	110	5.8	<0.24	<0.32	21.	0.33
12/2	21.	230	4.4	1.2	1.1	16.	0.48
12/16	19.	57.	3.6	-	0.60	7.6	<0.28
12/16	28.	55.	7.2	1.0	1.3	10.	0.36
12/16	21.	280	4.6	0.57	0.31	20.	0.41
12/16	25.	100	4.3	<0.23	<0.31	13.	<0.23
12/16	21.	95.	5.4	0.84	1.2	14.	0.50

Priest Rapids

Analytical Limit		1.	1.	0.2	0.2	0.2	0.1
10/15		97.	3.9	0.38	1.3	16.	0.40
10/15		120	3.8	0.60	1.1	14.	0.28
10/15		45.	4.4	<0.22	0.58	17.	0.49
10/15		130	<3.8	0.79	0.52	18.	0.45

Island View

Analytical Limit		1.0	1.0	0.2	0.2	0.2	0.1
1/16		1.4	3.6	<0.23	0.35	6.3	<0.22
1/19		1.7	2.7			1.7	0.24
1/19		1.4	3.9	0.42	1.2	8.7	0.30
3/7		190	3.3	0.41	0.98	31.	<0.21
3/7		35.	3.2	0.32	0.48	22.	0.37
3/13		74.	3.6	0.74	1.6	22.	0.74

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF WHITEFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>²⁴Na</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit		1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank</u>							
2/8		1.6	4.0	<0.15	<0.21	12.	<0.15
2/8		4.2	3.5	1.8	2.7	16.	0.55

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF BASS TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.1
<u>Island View</u>					
1/19	-	2.4		2.3	<0.12
1/19	-	2.8		1.0	<0.21
1/19	2.1	<3.9		20.	<0.33
1/24	-	3.5		3.2	<0.10
2/15	-	3.8		4.4	0.31
5/6	1.4	3.6		0.82	<0.15
5/7	-	2.8		6.4	0.59
6/18	2.2	3.3		7.9	0.61
7/3	43.	<3.4		11.	<0.29
7/9	6.2	3.4		9.2	0.49
9/24	22.	4.0		9.0	<0.28
9/25	1.6	2.5		1.4	<0.13
9/25	-	4.2		2.8	<0.21
11/26	-	2.5		2.6	<0.22
11/26	140.	2.5		2.9	<0.12
12/3	-	2.6		1.8	<0.21
12/3	-	3.4		1.4	<0.16
12/3	-	<3.0		2.4	<0.26
12/3	-	3.9		1.4	<0.27
12/6	1.1	3.5		5.0	<0.23

Results less than analytical limit are indicated
by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF BASS TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank</u>						
3/21	-	2.8			9.4	0.14
3/21	-	3.5			10.	<0.21
5/2	1.8	4.6			7.4	0.27
5/2	-	3.8			6.1	0.42
5/2	1.4	4.6			7.4	0.45
5/2	-	4.5			3.4	<0.24
5/9	-	3.3			4.9	0.37
6/14	2.9	3.8			6.8	0.48
6/14	2.0	3.0			6.9	0.22
7/23	8.2	3.5	-	<0.23	14.	0.20
9/9	120.	5.1			15.	<0.41
9/10	40.	4.1			7.0	0.36
10/1	74.	<5.4			13.	<0.46
10/2	55.	<3.4			9.6	<0.29
11/5	14.	3.2			8.8	0.17
<u>Hover</u>						
4/18	-	3.4			11.	0.83
4/24	-	3.5			2.3	0.28
5/31	19.	6.3			18.	<0.44
5/31	65.	<6.5			16.	<0.56
6/4	73.	<3.5			16.	<0.30
7/9	97.	<5.1			17.	<0.44
7/17	34.	4.3			16.	<0.32
7/29	10.	3.0	<1.6	<0.22	4.6	0.37
7/29	30.	<1.9			1.0	0.27
7/29	4.5	4.0			7.8	<0.21
7/29	36.	4.1	-	<0.24	9.6	0.29
7/29	28.	4.2			15.	0.45
8/8	12.	4.4			11.	<0.20
9/6	30.	3.7			11.	<0.28
9/11	89.	<4.5			12.	<0.39

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 3

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CATFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Island View</u>						
1/16	-	<5.4			2.5	<0.46
3/7	-	2.9			10.	<0.12
3/7	-	<3.2			9.3	<0.27
3/7	-	<5.2			5.8	<0.45
3/7	-	<5.7			2.8	<0.49
3/7	-	<7.8			3.2	<0.67
3/7	-	<9.7			3.8	<0.83
4/12	2.5	2.4			0.39	<0.19
4/12	-	3.2			7.0	0.39
4/12	-	<2.1			5.9	0.39
4/12	1.3	<2.9			5.4	0.30
4/12	-	2.7			0.36	<0.20
5/7	-	2.7			5.0	0.26
5/7	-	3.3			1.9	0.16
5/7	-	3.0			4.0	0.37
5/7	-	3.1			4.4	<0.19
5/7	1.2	3.1			8.5	0.39
7/2	2.5	2.5			5.4	0.18
7/2	-	<6.6			<1.0	<0.57
7/3	33.	<3.6			1.2	<0.31
7/5	38.	<7.5			11.	<0.64
7/9	-	3.1			6.8	0.55
8/13	-	2.9			3.8	<0.15
8/13	-	3.0			3.5	<0.22
9/24	1.2	2.7			2.5	<0.12
9/27	31.	3.8			8.1	0.21
9/27	71.	3.2			11.	<0.13
10/4	20.	2.9			4.3	<0.17
10/4	-	2.2			0.90	<0.17
10/4	-	4.1			1.1	<0.27
10/4	1.4	<4.2			2.5	<0.36
10/4	10.	<4.4			5.4	<0.38
10/4	3.2	5.1			3.7	<0.42
10/4	1.8	<5.2			3.1	<0.45

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 3 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CATFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>32P</u>	<u>40K</u>	<u>58Co</u>	<u>60Co</u>	<u>65Zn</u>	<u>137Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1

Island View (Continued)

10/8	-	2.8			2.0	<0.22
10/8	1.6	<2.9			4.2	<0.25
10/8	-	<3.5			2.8	<0.30
11/8	-	<8.5			4.2	<0.73
11/15	4.2	3.5			2.4	<0.27
11/26	-	<4.2	<0.38	<0.46	2.0	<0.36
11/26	57.	<5.1			4.6	<0.44
11/26	6.8	<5.5			2.2	<0.47
11/26	230.	<8.2			3.8	<0.70
12/3	-	<3.3			2.8	<0.28
12/6	1.7	<8.2			2.7	<0.71

Burbank

2/2	-	3.4			6.3	0.43
2/2	-	2.6	-	-	4.6	0.17
2/2	-	2.7			12.	0.14
2/8	-	3.2	<0.21	<0.28	8.6	<0.21
2/8	-	3.4	<0.25	<0.31	8.1	0.26
2/8	1.6	3.3	-	<0.25	12.	<0.18
2/8	-	3.2	-	<0.20	6.2	<0.14
3/15	-	3.0			8.6	<0.11
3/15	-	2.5			1.7	0.12
3/15	-	2.9			13.	<0.17
3/15	-	2.2			13.	<0.14
3/15	-	2.6			8.3	<0.18
3/15	-	<2.2			6.7	<0.20
3/15	-	<2.3			9.6	<0.20
3/15	-	<2.7			2.8	<0.24
3/15	-	2.8			8.3	<0.23
3/15	-	<3.8			6.7	<0.32
4/9	-	<3.2			8.0	<0.28
4/9	-	3.7			3.8	<0.26
4/9	-	4.0			6.3	<0.24
4/9	-	3.8			7.2	<0.18
4/9	-	<2.8			6.1	<0.24
4/9	-	<2.8			6.7	<0.25
4/9	-	3.2			8.0	<0.16

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 3 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CATFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank (Continued)</u>						
4/9	-	4.0			7.1	<0.30
4/9	-	3.2			5.3	<0.14
4/9	-	3.6			4.2	<0.20
5/2	-	2.9			12.	<0.20
5/2	-	<2.3			7.1	<0.20
5/2	-	3.4			6.4	<0.24
5/2	-	4.1			6.6	<0.22
5/2	1.6	<3.3			10.	<0.29
6/14	1.3	3.8			3.3	<0.24
6/14	1.9	<2.8			7.0	<0.24
6/14	-	3.2			8.2	<0.24
6/14	1.5	<2.0			7.5	<0.18
6/14	2.7	2.7			7.6	<0.23
7/23	2.1	3.5	-	<0.21	11.	0.16
7/23	3.2	2.8	-	<0.20	7.7	<0.14
7/23	15.	3.8	-	<0.22	9.5	0.18
7/23	2.3	3.7	-	-	6.6	0.15
7/23	2.3	3.5			7.2	<0.15
7/23	10.	3.0	<0.23	<0.30	7.0	<0.22
7/23	2.4	3.0			4.3	0.22
7/23	4.3	3.8	-	<0.24	7.9	0.20
7/23	49.	3.2	<0.20	<0.26	8.2	<0.19
7/23	11.	4.2			11.	<0.23
8/21	14.	3.1			4.5	<0.13
8/26	21.	3.4			5.5	<0.15
8/27	2.2	3.1			0.57	<0.11
8/27	66.	2.8			4.4	<0.20
8/27	51.	3.3			7.8	<0.13
8/27	9.4	3.2			9.0	<0.17
8/27	66.	2.0			6.6	<0.17
8/27	28.	3.3			7.8	<0.16
8/27	-	3.6			0.31	<0.15
8/27	33.	3.2			6.6	<0.13

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 3 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CATFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1

Burbank (Continued)

9/10	100	3.0			6.5	<0.15
9/10	37	4.3			5.7	<0.24
9/10	100	3.0			6.5	<0.15
9/10	150	3.0			5.9	0.26
9/10	88	4.1			5.6	0.24
9/10	26	3.3			7.2	<0.18
9/10	18	3.6			5.6	<0.15
9/10	240	3.4			12	0.29
9/10	24	3.6			8.0	<0.22
9/10	35	4.4			7.5	<0.21
10/2	4.4	2.5			4.9	0.26
10/2	68	4.3			8.4	<0.16
10/2	28	3.7			6.7	<0.11
10/2	59	4.4			7.3	<0.13
10/2	9.1	3.5			4.1	<0.11
10/2	30	3.7			7.0	<0.10
10/2	49	2.9			9.3	<0.11
10/2	54	3.0			7.9	<0.11
10/2	11	3.6			5.5	<0.13
10/2	1.7	2.7			0.45	-
11/6	11	2.5			5.0	0.16
11/6	49	2.9			5.7	<0.13
11/6	10	2.6			7.5	<0.19
11/7	18	3.1			2.6	<0.19
12/13	1.2	2.6			8.6	-
12/13	1.3	3.2			8.8	0.14
12/13	8.7	<4.1			8.9	<0.35

Hover

2/26	1.3	<6.8			7.2	<0.58
2/26	-	<4.9			9.4	<0.42
2/26	1.5	<8.9			4.2	<0.77
3/13	-	2.3			4.6	0.18
3/13	-	2.8			3.0	0.20
3/13	-	<4.4			3.4	<0.37
3/13	-	<4.5			2.4	<0.39

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 3 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CATFISH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Hover (Continued)</u>						
3/25	2.9	<3.6			8.8	<0.31
3/25	3.3	<4.0			8.9	<0.35
3/26	-	3.7			<0.40	<0.22
3/28	2.1	<5.6			9.7	<0.48
5/16	3.4	<5.4			7.0	<0.46
5/16	4.6	<6.7			4.2	<0.58
5/21	4.6	3.8			8.1	<0.28
5/21	8.9	<4.0			7.5	<0.34
6/3	43.	<6.7			7.2	<0.58
8/7	53.	5.9			7.3	<0.49
8/9	47.	<4.3			4.4	<0.37
8/9	110.	10.			10.	<0.78
9/4	120.	<5.6			9.3	<0.48
9/5	61.	<5.1			6.9	<0.44
9/5	79.	<4.7			7.1	<0.40
9/5	91.	<4.2			8.0	<0.36
9/5	150.	<5.4			9.8	<0.47
9/6	73.	3.0			2.6	<0.16
9/6	32.	3.0			7.4	0.19
10/3	30.	5.5			9.2	<0.16
10/3	26.	4.1			7.4	<0.16
10/3	40.	4.6			8.3	<0.17
10/3	51.	4.8			8.9	<0.20
10/3	71.	4.7			12.	<0.16
10/3	120.	4.1			5.2	<0.12
10/3	93.	4.0			5.5	<0.17
10/3	47.	4.0			8.4	<0.15
10/3	43.	4.2			4.5	<0.16
10/3	66.	5.0			10.	<0.17
11/20	4.5	3.2			4.2	0.29
11/20	3.4	3.8			3.7	0.42
11/20	5.2	2.5			4.2	-
11/20	-	3.6			1.6	<0.11
12/18	5.7	<5.6			7.6	<0.48

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 4

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CRAPPIE TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	0.2	1.0	0.2	0.2	0.1
<u>Island View</u>						
1/16	-	2.5			5.4	<0.18
1/16	2.3	<2.9			7.7	<0.25
1/16	1.3	<6.1			8.5	<0.52
1/19	1.1	<4.7			8.8	<0.40
1/19	-	<3.4			16.	<0.30
1/19	1.6	3.7			16.	<0.26
1/19	1.2	<4.0			12.	<0.34
1/19	2.9	<4.2			19.	<0.36
1/19	1.4	<4.0			12.	<0.34
1/19	1.5	<2.7			12.	<0.24
1/19	1.4	<4.4			3.5	<0.38
1/19	1.6	<3.7			18.	<0.32
1/19	-	<4.6			6.0	<0.39
2/15	-	3.4			3.5	<0.27
2/15	-	<5.8			24.	<0.50
2/15	-	4.1			13.	<0.26
2/15	-	3.1			10.	<0.25
2/14	1.4	3.9			13.	0.29
2/14	-	4.3			12.	0.37
2/14	1.0	5.3			22.	<0.42
2/14	-	3.6			7.0	0.33
2/14	-	<3.4			2.0	<0.30
2/14	-	5.2			13.	0.30
3/7	-	<4.3			10.	0.45
3/7	-	<4.6			16.	<0.39
3/7	-	<4.2			14.	<0.36
3/7	-	<4.4			11.	<0.38
3/7	-	4.6			5.6	<0.35
3/7	-	<4.1			19.	<0.35
3/7	-	<4.5			8.6	<0.39
3/7	-	4.2			12.	<0.36
3/13	-	3.3			4.0	<0.19
3/20	-	5.0	<0.24	<0.29	5.6	<0.23
4/12	-	4.2			3.0	<0.27
5/7	1.9	2.7			5.5	0.21
5/7	1.2	10.			11.	<0.44
5/30	6.0	7.0			2.8	<0.40

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 4 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CRAPPIE TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Island View (Continued)</u>						
6/19	3.4	3.0			4.0	<0.23
6/19	2.2	3.8			4.8	<0.20
6/19	23.	3.9			14.	<0.32
6/19	62.	<4.5			6.7	<0.38
7/3	4.1	3.5			5.8	<0.24
7/3	15.	<1.8			4.2	<0.16
8/27	2.1	<8.2			2.5	<0.71
9/12	630	<5.9			14.	<0.51
9/13	240	<5.6			10.	<0.49
9/23	18.	3.0			11.	<0.22
9/23	48.	<4.5			8.2	<0.39
9/24	8.4	4.1			8.8	0.32
9/24	7.0	3.4			5.7	0.25
10/4	2.7	2.7			3.6	<0.17
10/4	2.2	4.5			6.2	<0.21
10/4	13.	<3.5			7.8	<0.30
10/8	13.	3.3			5.1	<0.24
10/8	15.	3.2			12.	0.30
10/8	47.	3.4			4.6	<0.27
11/8	20.	<5.0			12.	<0.43
11/8	52.	<6.5			13.	<0.56
11/8	54.	<7.0			10.	<0.60
11/13	5.0	3.2			5.0	<0.23
11/13	5.2	3.8			8.2	<0.24
11/13	15.	4.2			9.2	<0.25
11/13	12.	4.5			9.7	0.39
11/14	11.	<3.3			8.1	<0.28
11/26	82.	2.8			4.9	<0.14
12/3	1.4	<4.5			5.5	<0.39
12/3	11.	<4.4			9.5	<0.38
12/3	2.1	<3.5			7.6	<0.30
12/3	6.4	<3.4			6.5	<0.29
12/3	-	2.9			5.3	<0.23
12/3	6.3	<4.9			5.3	<0.42
12/3	1.0	<4.8			4.0	<0.42

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 4 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CRAPPIE TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Island View (Continued)</u>						
12/6	6.2	<4.5			6.0	<0.39
12/6	16.	<5.0			11.	<0.43
12/6	-	<4.8			3.8	<0.42
<u>Burbank</u>						
3/15	-	3.1			16.	<0.24
3/15	-	<3.7			11.	<0.32
4/9	-	3.0			13.	<0.18
4/9	-	<3.5			4.7	<0.30
4/9	1.0	<4.2			17.	<0.36
4/9	1.3	<4.7			20.	<0.41
4/9	-	<4.2			18.	<0.36
5/2	-	4.5			9.2	<0.23
5/2	1.2	3.2			15.	0.35
5/2	1.8	<3.2			15.	<0.27
5/2	1.6	<3.9			9.5	<0.34
5/2	2.4	4.7			5.9	<0.35
6/14	2.7	3.3			10.	0.26
6/14	1.6	2.7			7.7	0.22
6/14	1.2	<2.0			6.9	0.18
6/14	1.5	3.1			10.	<0.21
6/14	2.2	2.9			11.	<0.19
7/23	6.3	3.3	<0.21	<0.28	14.	<0.21
7/23	2.2	3.6	<0.15	<0.20	9.0	0.19
7/23	7.2	<2.7	<0.25	<0.33	17.	<0.24
7/24	3.4	3.1			8.6	0.19
7/26	28.	<5.6			6.8	<0.48
7/26	53.	<6.6			7.8	<0.56
7/30	32.	5.7			5.4	<0.48
8/27	57	<6.7			7.5	<0.57
8/30	120	<5.3			7.1	<0.45
9/10	53	<3.0			14.	0.26
9/10	190	<3.7			11.	<0.32
9/10	170	<3.1			11.	<0.27
9/10	200	<2.6			9.4	<0.23
9/10	140	3.6			8.4	<0.26
9/10	220	3.9			11.	<0.26

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 4 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CRAPPIE TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank (Continued)</u>						
10/1	120	<4.0			9.2	<0.35
10/2	34.	3.7			10.	<0.20
10/2	46.	3.6			5.9	<0.24
10/2	46.	3.0			16.	0.27
10/2	73.	4.5			14.	<0.25
10/2	120	4.1			14.	<0.26
10/2	120	4.0			10.	<0.24
11/7	23.	5.2			7.6	<0.45
<u>Hover</u>						
3/11	-	<2.7			16.	<0.24
3/25	-	2.9			14.	0.27
3/25	1.0	3.2			14.	<0.20
3/25	1.6	4.2			15.	0.30
3/25	5.4	<4.3			20.	<0.37
7/10	25.	<3.5			14.	<0.30
7/15	1.5	<5.0			11.	<0.43
8/7	28.	<4.6			6.1	<0.39
9/5	10.	<6.0			4.3	<0.51
9/11	130	<4.9			9.6	<0.42
9/19	22.	3.7			12.	0.23
9/19	72.	<2.9			14.	<0.25
10/3	110	3.8			13.	<0.20
10/9	67.	3.2			13.	<0.25
10/9	74.	<4.3			4.8	<0.37
10/10	34.	5.1			7.7	<0.38
10/10	74.	<5.6			9.5	<0.48
11/22	220	2.9			10.	<0.21
11/22	1.5	<4.3			2.5	<0.37
11/22	9.1	<4.8			9.8	<0.42

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 5

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF PERCH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Island View</u>						
1/16	4.6	<3.0			16.	0.48
1/16	1.3	<5.5			11.	<0.47
1/16	-	<4.4			7.2	<0.38
1/16	-	<5.6			8.4	<0.49
1/16	1.4	<4.8			8.8	<0.41
1/16	2.7	<4.9			16.	0.67
1/16	-	8.0			5.4	<0.69
2/14	-	<4.5			3.4	<0.38
2/14	-	<4.2			7.4	<0.36
2/14	-	4.4			3.6	<0.29
4/5	-	<8.4			<1.3	<0.73
4/12	1.9	<3.6			<0.56	<0.31
9/13	53.	<4.2			7.6	<0.36
9/17	4.7	<3.3			3.3	<0.28
10/11	43.	<4.3			4.0	<0.37
10/11	-	<5.0			3.2	<0.43
10/22	36.	<6.8			5.6	<0.58
11/14	3.4	3.3			7.9	0.51
<u>Burbank</u>						
2/2	1.0	<2.9			4.2	<0.25
2/2	-	3.7			3.6	<0.31
2/2	-	<3.4			4.5	<0.29
2/2	1.2	<3.5			5.2	<0.30
2/2	-	4.5			4.8	<0.25
2/2	1.2	<2.7			4.2	<0.24
2/2	-	5.3			5.6	<0.33
3/15	-	3.0			9.0	0.56
3/15	-	<4.2			14.	0.49
3/15	-	<6.7			8.8	<0.58
3/21	1.9	<5.2			7.6	<0.45
3/21	-	<4.1			7.8	<0.35
3/21	-	<4.6			7.3	<0.40
3/21	-	4.2			8.4	<0.35
3/21	1.2	4.8			10.	0.33
3/21	-	5.2			12.	0.37
3/21	-	3.9			10.	<0.31

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 5 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF PERCH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank</u> (Continued)						
4/9	-	<4.5			7.5	<0.39
4/9	-	<5.1			7.0	<0.44
4/9	-	<4.5			9.3	<0.38
4/9	-	<6.2			14.	<0.53
4/9	-	<6.0			10.	<0.51
4/9	1.1	<4.1			10.	<0.35
4/9	-	<4.4			6.3	<0.38
4/9	-	<4.5			6.6	<0.39
4/9	-	<6.1			5.8	<0.52
4/9	-	<6.2			8.2	<0.54
5/2	2.2	<5.0			23.	<0.43
5/2	1.4	5.9			9.3	<0.44
5/9	-	4.0			9.9	<0.32
5/24	1.6	<5.6			4.8	<0.48
5/24	-	<4.5			5.5	<0.39
6/12	-	<3.9			8.4	0.38
6/12	3.1	<4.1			7.6	<0.35
6/12	5.3	<3.2			16.	<0.28
6/12	1.1	<3.1			5.2	<0.27
6/12	-	<4.9			6.5	<0.42
7/24	6.5	8.9			6.5	<0.59
7/30	44.	4.3			6.3	<0.32
7/30	44.	4.6			6.3	<0.31
7/30	35.	<4.1			5.7	<0.35
8/26	36.	<3.3			6.8	<0.28
8/26	120	<3.4			8.0	<0.29
8/26	94.	<3.8			7.3	<0.33
8/27	30.	<3.7			10.	<0.32
9/9	88.	5.5			8.5	<0.37
9/9	140	<3.8			9.4	<0.33
9/9	160	<4.8			8.5	<0.41
9/9	120	4.8			9.2	<0.38
9/9	170	<4.2			13.	<0.36
9/9	260	<5.1			13.	<0.44
9/10	81.	3.6			10.	<0.28
9/10	36.	<4.6			7.4	<0.39
9/10	88.	<3.6			6.9	<0.31
9/10	108	<4.3			9.1	<0.37

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 5 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF PERCH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank</u> (Continued)						
10/1	28.	<5.1			10.	<0.44
10/2	49.	3.8			7.9	<0.30
10/2	89.	<4.3			9.1	<0.37
10/2	58.	<3.0			7.6	<0.26
10/2	29.	<5.0			4.9	<0.43
11/5	23.	<3.2			7.7	<0.28
11/5	21.	<3.9			7.4	<0.34
11/5	20.	<3.2			7.5	<0.27
11/5	35.	<3.5			8.5	<0.30
11/5	26.	<3.4			7.8	<0.29
11/6	147.	<3.8			8.7	<0.33
11/7	34.	4.2			6.0	<0.29
11/7	38.	<3.7			8.1	<0.32
11/7	23.	<3.4			7.8	<0.29
11/7	9.5	<4.3			7.1	<0.37
12/13	9.4	<3.4			7.7	<0.29
12/13	8.2	<3.9			6.4	<0.33
12/13	9.0	<3.5			6.4	<0.30
12/20	3.7	<4.0			6.2	<0.34
<u>Hover</u>						
1/30	5.1	6.4			23.	0.49
2/28	3.6	<5.4			20.	<0.47
2/28	2.9	<4.4			19.	<0.38
2/28	2.6	5.8			12.	<0.45
2/28	5.4	<5.8			12.	<0.50
2/28	4.1	3.8			9.0	<0.33
2/28	2.5	4.9			9.6	<0.33
3/11	2.7	3.5			9.1	<0.27
3/25	4.8	3.8			9.2	<0.25
3/25	3.9	<3.0			16.	0.40
3/25	2.4	4.4			9.7	<0.28
3/26	7.3	<2.7			10.	0.33
3/27	5.1	<5.5			9.4	<0.47
3/27	4.0	<5.9			15.	<0.51
3/27	4.9	<4.8			14.	<0.41
3/27	6.2	<4.7			14.	<0.40

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 5 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF PERCH TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g. wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Hover (Continued)</u>						
4/17	1.4	<4.0			14.	<0.34
4/17	4.8	3.7			11.	<0.31
4/17	1.7	<3.8			17.	<0.33
4/17	1.3	<5.2			13.	<0.45
4/17	3.7	<5.7			14.	<0.49
5/16	9.7	<6.9			8.6	<0.60
5/16	10.	<4.9			9.4	<0.42
5/16	13.	<4.6			11.	<0.40
5/16	15.	<5.2			14.	<0.45
5/16	12.	<5.3			11.	<0.46
6/3	40.	6.0			12.	<0.40
6/3	34.	7.0			13.	<0.42
6/3	30.	5.9			8.0	<0.36
6/3	44.	8.7			9.6	<0.48
6/4	48.	3.3			12.	<0.27
7/10	40.	4.3			13.	<0.33
7/10	41.	3.8			11.	<0.26
7/10	35.	4.5			12.	<0.28
7/10	48.	4.0			9.8	<0.27
7/12	18.	<4.4			13.	<0.38
7/12	67.	3.7			8.1	<0.30
7/17	47.	4.2			8.0	<0.28
7/29	40.	5.3			9.6	<0.37
7/29	57.	<4.4			7.7	<0.38
7/29	53	5.4			7.9	<0.39
8/1	-	7.5			2.6	<0.48
8/7	41.	<4.8			9.3	<0.41
8/7	30.	5.4			9.0	<0.34
8/7	16.	<4.0			9.4	<0.35
8/7	33.	4.3			10.	<0.34
8/7	34.	5.1			9.2	<0.40
8/8	74.	5.7			11.	<0.39
8/9	57.	4.8			8.5	<0.23
8/9	42.	<3.6			10.	<0.31
8/9	48.	5.2			11.	<0.35
9/4	100	<3.2			10.	<0.28
9/4	110	<3.8			11.	<0.33

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 6 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CARP TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1

Island View (Continued)

10/4	-	2.9			3.9	<0.17
10/4	-	3.0			4.7	<0.14
10/4	-	2.8			1.7	<0.14
10/4	-	3.3			3.1	<0.16
10/4	1.2	2.7			3.2	<0.14
10/4	2.8	2.5			2.9	<0.15
10/4	11.	2.7			6.1	<0.20
10/4	1.5	3.2			2.5	<0.17
10/4	1.2	3.5			2.4	<0.15
10/8	-	3.6			3.6	<0.18
11/8	61.	3.1			18.	0.14
11/8	-	<3.0			4.4	<0.26
11/8	-	<3.3			3.0	<0.28
11/8	2.8	3.4			2.0	<0.28
11/8	76.	<3.2			21.	<0.27
11/13	-	3.7			6.0	<0.15
11/13	-	2.7			3.3	<0.18
11/13	39.	3.6			18.	<0.16
11/13	-	3.4			6.0	<0.19
11/13	9.5	3.3			7.7	<0.21
12/2	1.2	3.3			0.62	<0.21
12/2	1.8	2.1			12.	<0.15
12/2	-	3.5			2.5	<0.16
12/2	12.	3.7			27.	<0.18
12/2	34.	2.8			28.	<0.15
12/2	3.8	3.4			7.7	<0.19
12/2	22.	3.1			20.	<0.15
12/2	17.	2.9			17.	<0.20
12/2	-	3.2			4.5	<0.16
12/2	-	<3.1			5.5	<0.27

Burbank

2/8	-	2.6			14.	<0.15
5/2	2.3	3.8			26.	<0.23
5/2	2.4	4.0			20.	<0.21
5/2	4.2	3.2			17.	<0.23
7/23	20.	4.3	<0.17	<0.23	24.	<0.17

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 6 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CARP TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank</u> (Continued)						
7/23	6.7	3.2	<0.18	<0.25	13.	<0.18
7/23	52.	8.1	<0.37	<0.45	120.	1.4
7/23	15.	4.3	<0.17	<0.23	34.	<0.17
7/23	150.	3.9	<0.23	<0.31	19.	<0.23
7/23	7.1	3.0	<0.17	<0.22	22.	<0.16
7/23	12.	3.2	<0.12	<0.17	18.	<0.12
7/23	14.	3.1	<0.12	<0.16	36.	0.15
7/23	26.	3.0	<0.14	<0.19	39.	<0.14
7/23	5.6	3.5	<0.16	<0.22	10.	<0.16
8/21	36.	3.7			19.	<0.17
8/21	94.	2.4			13.	<0.20
8/21	93.	2.8			16.	<0.20
8/21	120.	3.6			21.	<0.21
8/21	83.	<3.3			13.	<0.28
8/27	140.	3.3			11.	<0.15
8/30	56.	3.3			13.	<0.15
9/10	41.	2.6			30.	<0.16
9/10	90.	2.9			17.	<0.15
9/10	39.	3.2			15.	<0.23
9/10	68.	3.0			14.	<0.16
9/10	48.	2.9			22.	<0.14
9/10	93.	3.0			31.	<0.15
9/10	70.	3.8			21.	<0.19
9/10	56.	3.6			13.	<0.16
9/10	58.	2.7			11.	<0.19
9/10	71.	2.8			38.	<0.15
10/2	24.	3.6			14.	<0.11
10/2	17.	3.2			23.	<0.12
10/2	34.	3.3			8.9	<0.14
10/2	23.	2.8			15.	<0.15
10/2	6.6	3.1			16.	<0.17
10/2	5.8	2.8			27.	<0.17
10/2	8.9	3.0			7.3	-
10/2	3.5	2.4			15.	<0.11

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 6 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CARP TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Burbank</u> (Continued)						
11/7	5.1	3.1			12.	0.15
11/7	7.6	3.3			13.	<0.19
11/7	7.4	2.6			11.	<0.17
11/7	16.	2.7			10.	<0.12
12/19	3.8	3.1			18.	0.21
12/19	1.4	3.4			15.	<0.16
12/19	2.6	3.2			16.	<0.13
12/19	2.9	3.2			4.3	<0.13
12/20	4.8	2.9			32.	<0.11
12/20	4.5	3.0			30.	<0.15
12/20	5.3	3.4			2.5	<0.15
12/20	5.5	3.0			18.	<0.13
12/13	9.5	2.4			27.	<0.14
12/13	9.3	2.6			23.	<0.11
<u>Hover</u>						
4/18	1.4	3.0			6.4	<0.14
4/18	-	<2.8			22.	<0.24
4/18	5.9	3.6			33.	<0.22
7/9	23.	3.7			1.1	<0.23
7/10	5.1	4.9			6.0	<0.23
7/10	44.	3.4			10.	<0.18
7/10	58.	4.3			44.	0.40
7/10	58.	<3.2			15.	<0.28
7/10	59.	<3.8			20.	<0.33
7/10	63.	4.3			34.	<0.35
7/12	38.	4.2			11.	<0.16
7/29	6.3	3.1			24.	<0.17
7/29	33.	3.5			14.	<0.18
7/29	2.4	3.4			13.	<0.24
7/29	9.7	3.7			29.	<0.30
8/7	40.	5.4			6.6	<0.21
8/7	40.	<4.3			14.	<0.37
8/7	38.	<4.0			7.9	<0.34
8/7	42.	4.0			5.6	<0.19

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 6 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE
OF CARP TAKEN FROM THE COLUMBIA RIVER - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁵⁸Co</u>	<u>⁶⁰Co</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs</u>
Analytical Limit	1.0	1.0	0.2	0.2	0.2	0.1
<u>Hover</u> (Continued)						
8/8	33.	4.1			5.1	<0.24
8/8	43.	4.1			9.4	<0.16
8/8	37.	3.1			11.	<0.22
9/6	180.	3.9			15.	<0.21
9/11	55.	3.2			24.	<0.18
9/11	64.	4.8			20.	<0.20
10/3	33.	3.6			13.	<0.23
10/9	99.	3.0			20.	<0.17
10/9	100.	3.4			13.	<0.19
10/9	210.	2.8			16.	<0.24
10/9	66.	4.0			15.	<0.25
10/9	57.	3.1			15.	<0.22
10/9	110.	3.1			17.	<0.22
11/19	26.	3.5			19.	<0.23
11/20	15.	4.0			19.	0.18
11/20	17.	3.0			15.	0.11
11/20	9.0	4.6			20.	<0.20
11/20	15.	3.1			13.	<0.13
11/22	5.9	3.5			11.	<0.21
11/22	34.	4.4			20.	<0.19
12/18	12.	3.2			6.9	<0.15
12/18	16.	4.1			23.	<0.19
12/18	12.	2.4			18.	<0.17
12/18	13.	3.0			27.	<0.19
12/18	3.8	3.6			24.	<0.15
12/18	5.7	3.3			28.	<0.17
12/18	6.8	3.7			22.	<0.15
12/18	3.2	2.5			25.	<0.16
12/18	6.0	3.2			22.	<0.11
12/18	2.5	2.6			22.	<0.15

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 7

CONCENTRATIONS OF RADIONUCLIDES IN WATERFOWL
SAMPLES IN THE HANFORD ENVIRONS - 1968

Units of pCi/g, wet weight

Date	Species	Head				Muscle			
		³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba	³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba
Analytical Limit		1	1	0.2	0.1	1	1	0.2	0.1
<u>DUCKS</u>									
<u>Hanford</u>									
1-17	Mallard	25.0	<3.2	2.1	<0.28	0.43	2.5	0.55	<0.22
1-17	Mallard	23.	<3.3	3.7	<0.28	1.2	3.0	2.0	0.24
1-17	Mallard	160	<3.5	17.	<0.30	34.	3.9	7.4	<0.23
1-17	Mallard	41.	<2.7	8.1	<0.24	24.	2.8	4.8	0.23
10-31	Mallard	48.	<2.9	4.1	<0.25	74.	2.8	1.8	<0.11
11-8	Mallard	3.5	<2.8	5.1	<0.24	11.	3.1	2.1	<0.13
11-11	Golden Eye	380.	<3.3	19.	<0.28	260.	3.2	11.	0.41
11-11	Golden Eye	67.	<4.4	7.0	<0.38	63.	4.0	4.4	0.22
11-14	Golden Eye	730	<3.1	40.	0.38	450.	3.7	23.	<0.15
11-18	Merganser	69.	6.6	0.57	<0.27	21.	3.9	0.51	<0.11
11-18	Mallard	51.	4.0	6.7	<0.27	20.	3.2	2.9	<0.12
11-18	Mallard	370	<2.9	12.	<0.25	430.	2.7	7.8	<0.12
11-25	Mallard	84.	<3.3	5.8	<0.28	160.	2.9	3.6	<0.11
11-25	Mallard	100	<4.0	5.4	<0.35	33.	3.1	1.8	<0.12
11-25	Mallard	1.6	<3.0	0.71	<0.26	0.49	3.4	<0.23	<0.13
11-25	Mallard	81.	<3.2	6.1	<0.27	8.2	2.7	2.6	<0.14
11-25	Mallard	220.	<3.6	5.0	<0.31	4.6	4.3	0.71	<0.15
11-25	Mallard	88.	<3.7	3.8	<0.32	92.	3.3	2.4	<0.12
12-6	Mallard	54.	5.4	12.	<0.26	37.	2.6	6.3	<0.15
12-16	Mallard	49.	<3.4	8.4	<0.29	40.	4.2	5.0	0.14
12-16	Mallard	1.9	<3.5	2.2	<0.30	1.5	3.0	0.99	<0.10
12-16	Mallard	17.	<4.2	4.4	<0.36	17.	2.5	2.0	<0.14
12-16	Mallard	32.	<4.1	2.8	<0.35	6.2	3.0	0.73	<0.12

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Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 7 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN WATERFOWL
SAMPLES IN THE HANFORD ENVIRONS - 1968

Units of pCi/g, wet weight

Date	Species	Head				Muscle			
		³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba	³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba
Analytical Limit		1	1	0.2	0.1	1	1	0.2	0.1
<u>DUCKS</u> (Continued)									
<u>Hanford</u> (Continued)									
12-16	Mallard	48.	<4.0	10.	<0.35	29.	3.6	4.5	<0.11
12-16	Mallard	220.	<4.0	16.	<0.35	76.	3.2	6.7	<0.12
12-16	Mallard	81.	<3.0	15.	<0.26	15.	2.7	9.8	<0.14
12-16	Mallard	28.	<3.2	3.1	<0.28	1.5	3.8	0.99	<0.12
12-16	Mallard	3.8	<3.5	2.7	<0.30	3.2	5.8	2.0	<0.21
12-16	Mallard	32.	<3.6	7.3	<0.31	20.	3.3	4.4	<0.12
12-16	Mallard	0.92	<3.3	0.73	<0.28	1.1	3.1	<0.21	<0.12
12-16	Mallard	2.0	<3.9	0.63	<0.33	0.23	3.2	<0.23	<0.12
12-16	Mallard	100.	<4.0	7.0	<0.35	25.	3.0	2.4	<0.13
12-16	Mallard	19.	<2.8	1.4	<0.24	2.1	3.3	0.31	<0.12
12-16	Mallard	47.	<4.2	2.2	<0.36	2.2	3.5	0.30	<0.15
12-16	Mallard	85.	<2.9	4.9	<0.25	5.0	3.4	1.6	<0.11
12-16	Mallard	44.	<3.2	24.	<0.28	45.	3.2	17.	<0.11
12-18	Mallard	63.	<4.1	9.2	<0.35	46.	3.2	3.6	<0.11
12-20	Mallard	22.	<2.8	12.	<0.24	19.	3.6	6.9	<0.12
12-30	Mallard	270.	<3.8	29.	<0.33	160.	2.8	16.	<0.12
12-30	Mallard	100	<3.4	3.7	<0.29	4.2	3.0	0.97	<0.13
12-30	Mallard	610	<4.1	7.7	0.57	0.74	3.3	<0.30	<0.17
<u>Savage Island</u>									
10-21	Mallard	39.	<3.3	4.7	<0.28	50.	3.0	2.1	<0.12
10-21	Mallard	24.	<3.6	8.3	5.2	7.6	3.5	3.0	8.5
10-21	Teal	590.	<7.2	11.	<0.61	310	<4.0	3.4	<0.35
10-21	Teal	270.	<8.2	4.4	<0.71	77.	<4.1	0.69	<0.35
11-25	Mallard	610	<3.7	2.2	<0.32	16.	2.8	0.60	<0.09

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Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 7 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN WATERFOWL
SAMPLES IN THE HANFORD ENVIRONS - 1968

Units of pCi/g, wet weight

Date	Species	Head				Muscle			
		³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba	³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba
Analytical Limit		1	1	0.2	0.1	1	1	0.2	0.1

DUCKS (Continued)

Savage Island (Continued)

11-25	Mallard	13.	<3.9	7.3	<0.33	20.	3.3	4.1	<0.11
11-25	Mallard	210	<3.9	9.8	<0.33	63.	3.0	2.2	<0.12
11-25	Mallard	390	<11.	14.	<0.94	240	<3.2	4.2	<0.27
12-16	Mallard	2.8	<4.1	5.6	<0.35	2.8	3.4	3.2	<0.13
12-16	Mallard	12.	<3.1	4.2	<0.27	4.5	3.4	2.6	<0.14
12-16	Mallard	26.	<3.2	5.8	<0.28	11.	3.6	3.0	<0.12
12-16	Mallard	11.	<3.2	1.4	<0.27	5.6	3.3	0.68	<0.12

White Bluffs

10-17	Mallard	89.	<3.4	7.9	<0.30	67.	7.2	5.0	<0.26
10-17	Mallard	31.	<3.1	2.9	<0.26	8.8	3.0	0.95	<0.10
10-17	Mallard	22.	<3.3	0.9	<0.28	2.9	3.1	<0.19	<0.10
11-25	Mallard	40.	<3.0	2.5	<0.26	12.	2.3	1.2	<0.12
11-25	Mallard	63.	<4.1	1.8	<0.35	3.6	4.1	0.33	<0.15
12-30	Mallard	48.	<4.0	5.9	<0.35	4.1	3.5	2.9	<0.14

Gable Swamp

¹³⁴ Cs					¹³⁴ Cs				
12-3	Mallard	110	<9.9	5.1	11.	38.	4.0	2.9	11.
12-26	Golden Eye	140	<3.9	0.77	260	3.6	2.9	<1.6	<0.26
12-27	Teal	150	<5.2	<0.80	160	1.9	130	5.1	<0.48
								4.7	330

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

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APPENDIX C
TABLE 7 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN WATERFOWL
SAMPLES IN THE HANFORD ENVIRONS - 1968
Units of pCi/g, wet weight

Date	Species	Head				Muscle			
		³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs= ^{137m} Ba	³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs= ^{137m} Ba
Analytical Limit		1	1	0.2	0.1	1	1	0.2	0.1
<u>EESE</u>									
<u>White Bluffs</u>									
12-30	Lesser Can. Goose	2.2	<3.2	1.5	<0.27	1.4	3.1	0.95	<0.10
12-30	Lesser Can. Goose	0.61	<2.5	2.6	<0.22	0.70	2.7	1.8	<0.08
12-30	Lesser Can. Goose	0.99	<4.4	2.2	<0.38	0.57	2.9	1.1	<0.12
12-30	Lesser Can. Goose	0.20	<3.5	0.85	<0.30	0.98	2.8	0.24	<0.13
<u>Hanford</u>									
12-3	Can. Honker	1.1	<3.6	<0.55	<0.31	0	3.3	0.23	<0.11
12-3	Can. Honker	94.	<4.6	0.78	<0.39	0	3.2	<0.21	<0.12
12-4	Can. Honker	3.9	3.5	6.0	<0.25	6.4	3.1	3.8	0.12
12-4	Can. Honker	7.4	3.1	21.	<0.15	2.9	3.4	13.	<0.10
12-6	Lesser Can. Goose	1.8	<4.2	1.1	<0.37	0.36	2.7	0.3	<0.12
12-6	Lesser Can. Goose	2.2	<4.2	3.2	<0.36	0.55	2.8	1.5	<0.12
12-6	Lesser Can. Goose	0.85	<4.4	3.5	<0.38	0.57	3.1	1.1	<0.14
12-16	Lesser Can. Goose	1.7	<3.7	1.1	<0.32	1.4	3.3	0.43	<0.14
12-16	Lesser Can. Goose	2.0	<4.2	<0.65	<0.36	0.20	2.8	<0.25	<0.14
12-26	Lesser Can. Goose	0.70	3.5	0.70	<0.29	0.37	3.5	<0.19	<0.10
12-26	Lesser Can. Goose	0.50	<3.7	0.76	<0.32	0.33	3.2	0.36	0.13
12-27	Lesser Can. Goose	1.1	<2.9	2.5	<0.25	0.46	2.8	0.99	<0.12
12-27	Lesser Can. Goose	1.5	<3.6	2.1	<0.31	0.77	2.5	1.0	<0.11
12-27	Lesser Can. Goose	7.4	2.9	14.	<0.20	9.2	2.4	0.93	<0.12
12-30	Lesser Can. Goose	0.45	<3.4	0.89	<0.29	0.04	2.0	0.23	<0.09

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Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 8

CONCENTRATIONS OF RADIONUCLIDES IN UPLAND GAME BIRD
SAMPLES IN THE HANFORD ENVIRONS - 1968

Units of pCi/g, wet weight

Species	Date	Muscle			
		³² P	⁴⁰ K	⁶⁵ Zn	¹³⁷ Cs- ^{137m} Ba
Analytical Limit		1	1	0.2	0.1
<u>CHUKAR</u>					
	<u>Priest Rapids</u>				
	10-15	1.4	3.1	<0.42	<0.23
	10-16	1.4	3.5	<0.36	<0.20
<u>PHEASANT</u>					
	<u>Priest Rapids</u>				
	12-13	0.85	3.0	0.44	<0.13
	<u>Hanford</u>				
	10-29	8.2	2.1	1.7	<0.11
	11-12	7.8	2.4	1.3	<0.17
	11-14	11.	2.9	5.8	<0.14
	11-24	100	2.0	1.4	<0.15
	11-26	2.2	2.6	1.9	<0.15
	12-11	2.1	2.4	3.0	<0.14
	<u>100-B</u>				
	10-23	3.6	3.5	0.25	<0.13
	11-15	11.	3.0	7.7	<0.14
	12-2	0.88	2.3	<0.25	<0.14
	12-6	0	3.1	0.34	<0.16
	12-6	0.74	3.3	<0.34	<0.19
	12-10	2.6	2.9	3.1	<0.15
	12-10	0.35	2.3	0.99	<0.14
	12-11	3.9	2.8	2.1	<0.14
	12-13	5.3	5.8	12.	<0.34
	<u>300 Area</u>				
	10-25	1.1	2.5	<0.36	<0.20
	10-28	0	3.0	<0.24	<0.13
	10-30	46.	2.9	8.9	<0.15
	12-19	0.22	3.1	<0.20	<0.11
<u>QUAIL</u>					
	<u>Hanford</u>				
	10-25	29.	<3.5	4.5	<0.30
	10-25	86.	4.0	9.8	<0.34
	10-25	61.	<3.4	6.7	<0.29

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX C
TABLE 8 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN UPLAND GAME BIRD
SAMPLES IN THE HANFORD ENVIRONS - 1968

Units of pCi/g, wet weight

<u>Species</u>	<u>Date</u>	<u>Muscle</u>			
		<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit		1	1	0.2	0.1
<u>QUAIL</u> (Cont.)					
<u>Hanford</u> (Cont.)					
	10-30	32.	<4.7	6.0	<0.40
	10-31	12.	<4.9	2.8	<0.42
	10-31	13.	<4.3	3.9	<0.37
	10-31	30.	<4.7	4.4	<0.40
	11-25	12.	<5.1	3.0	<0.44
	12-10	490	4.0	11.	0.17
<u>100-B</u>					
	11-11	24.	<5.1	4.9	<0.44
	11-11	19.	<4.1	4.6	<0.35
	11-11	27.	<5.5	4.1	<0.47
	11-11	7.0	<7.1	2.3	<0.61
	11-15	8.4	5.2	2.6	<0.39
	11-15	14.	<4.8	4.0	<0.41
	12-4	1.7	<4.5	1.0	<0.39
	12-6	2.2	<4.6	2.2	<0.39
	12-9	0.70	<5.8	0.65	<0.50
	12-10	64.	<4.2	1.4	<0.36
	12-10	5.2	<3.3	1.4	<0.28
<u>300 Area</u>					
	10-18	12.	<5.8	1.3	<0.50

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX D
RADIONUCLIDES IN SHELLFISH

APPENDIX D
TABLE 1

CONCENTRATION OF RADIONUCLIDES IN
OYSTERS FROM WILLAPA BAY, WASHINGTON - 1968
pCi/g, wet weight

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	1.0	1.0	0.2	0.1
1-18-68	-	1.5	34	-
2-1	-	1.9	31	-
2-9	1.2	1.9	32	0.1
2-28	1.1	1.9	25	-
3-12	2.7	1.7	31	-
3-26	3.4	1.7	31	-
4-8	2.8	1.6	28	-
4-25	2.5	2.0	38	-
5-6	1.1	1.9	31	-
5-20	3.5	2.1	29	-
6-4	3.2	2.2	29	-
6-17	3.3	1.9	26	-
7-1	5.2	2.2	22	0.1
7-16	2.7	2.3	22	-
7-30	-	6.2	24	0.3
8-13	-	2.3	21	-
8-26	-	2.6	22	-
9-11	-	2.3	19	-
9-24	-	2.0	21	-
10-7	1.2	2.2	19	-
10-21	-	2.1	17	0.1
11-4	-	2.0	18	-
11-27	-	1.9	16	-
12-10	-	1.9	20	-

Results less than analytical limit are
indicated by a (-).

No entry indicates no analysis made.

APPENDIX E
RADIONUCLIDES IN THE ATMOSPHERE

APPENDIX E
TABLE 1
CONCENTRATIONS OF ^{131}I IN THE AIR OF THE HANFORD ENVIRONS - 1968
pCi/m³ (Continuous samples)
S. E. Quadrant

Approx. (200L & wk. end. (200W) Date	Project	Richland	Pasco	Kennewick	Benton City	Byers Landing	Mesa	Wahluke	Eltopia	Ringold	Byers Pump Hse.	Berg Finley Ranch
1/3	-	-	-	-	-	0.04	-	-	-	-	-	-
1/10	0.04	-	0.03	-	-	0.06	-	-	0.03	0.02	0.03	-
1/17	0.02	0.02	0.02	-	-	-	-	-	-	-	0.02	-
1/24	-	-	0.02	-	-	0.03	-	-	-	-	-	-
1/31	-	0.03	-	-	-	-	-	-	-	0.02	-	-
2/7	0.02	0.06	0.02	0.04	0.05	0.03	-	-	-	0.04	0.04	-
2/14	0.02	-	-	-	-	-	-	-	-	-	-	-
2/21	-	-	0.02	-	-	0.02	0.03	-	0.02	-	0.03	-
2/28	-	0.03	0.02	-	0.04	-	-	-	-	-	-	-
3/6	-	-	-	-	-	0.02	0.02	-	-	-	-	-
3/13	0.02	-	0.03	-	-	0.02	-	-	-	-	0.03	-
3/20	0.02	0.14	0.06	-	0.02	0.03	-	-	0.03	0.07	0.04	-
3/27	0.02	-	-	-	-	-	-	-	-	-	0.04	-
4/3	0.03	-	-	-	-	0.02	-	-	-	-	-	-
4/10	0.03	-	-	0.03	0.02	0.04	-	-	-	-	-	-
4/17	0.04	-	0.03	0.02	-	-	-	-	0.02	0.02	0.05	-
4/24	0.06	0.03	-	-	-	-	-	0.07	-	-	-	-
5/1	0.04	-	0.03	-	0.02	-	-	-	-	0.03	-	-
5/8	0.03	0.04	0.05	-	0.05	0.03	0.02	0.09	0.03	-	-	-
5/15	0.02	0.02	-	-	0.02	0.02	-	-	0.02	-	-	-
5/22	0.03	-	-	-	-	-	-	-	-	-	-	-
5/29	-	0.03	-	-	0.04	0.04	-	-	-	-	-	-
6/3	-	-	-	-	-	-	-	-	-	-	-	-
6/10	-	-	-	-	-	-	-	-	-	-	-	-
6/17	0.02	-	-	-	-	-	-	-	-	-	-	-
6/24	0.02	-	-	-	-	-	-	-	-	-	-	-
7/1	-	-	-	-	0.02	-	-	-	0.04	-	-	-

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

Results less than analytical limit of 0.02 pCi/m³ are indicated by a (-).

No entry indicates no analysis made.

APPENDIX E
TABLE 2 (Part A continued)

CONCENTRATION OF RADIOACTIVE BETA PARTICULATES IN THE
AIR OF THE HANFORD ENVIRONS - 1968

		S. E. Quadrant											
Approx. (200E & wk.end. (200W)										Byers Pump	Berg Ranch		
Date	Project	Richland	Pasco	Kennewick	Benton City	Byers Landing	Mesa	Wahluke	Eltopia	Ringold	Hse.	Finley	
7/8	0.25	0.26	0.30		0.34	0.24	0.29	0.24	0.26	0.28			
7/15	0.22	0.22	0.27		0.21	0.19	0.10	0.17	0.18	0.18			
7/22	0.24	0.18	0.17		0.31	0.23	0.07	0.23	0.26	0.20			
7/29	0.25	0.28	0.37		0.36	0.27	0.12	0.07	0.28	0.34			
8/5	0.23	0.26	0.31		0.29	0.20	0.28	0.24	0.26	0.23	0.05		
8/12	0.29	0.31	0.29		0.26	0.22	0.24	0.20	0.25	0.20	0.23	0.04	
8/19	0.15	0.15	0.15		0.17	0.13	0.19	0.15	0.16	0.11	0.21	0.17	
8/26	0.13	0.13	0.13		0.13	0.12	0.07	0.10	0.11	0.11	0.50	0.06	
9/4	0.23	0.11	0.13		0.17	0.13	0.14	0.17	0.26	0.12	0.14	0.05	
9/11	0.45	0.16	0.19		0.13	0.13	0.14	0.11	0.12	0.12	0.12	0.11	
9/18	0.33	0.13	0.11		0.13	0.09	0.09	0.08	0.09	0.09	0.19	0.09	
9/25	0.21	0.08	0.08		0.14	0.12	0.16	0.15	0.17	0.08	0.09	0.13	
10/2	0.39	0.15	0.15		0.17	0.13	0.22	0.14	0.33	0.12	0.17	0.21	
10/9	0.24	0.11	0.19		0.07	0.09	0.19	0.11	0.18	0.03	0.09	0.10	
10/16	0.18	0.09	0.08		0.11	0.05	0.09	0.07	0.16	0.04	0.51	0.06	
10/23	0.36	0.08	0.14		0.13	0.12	0.10	0.12	0.11	0.06	0.09	0.11	
10/30	0.26	0.19	0.18		0.18	0.18	0.18	0.17	0.15	-	0.10	0.16	
11/6	0.20	0.11	0.10		0.12	0.10	0.14	0.12	0.12	0.08	0.32	0.13	
11/13	0.22	0.05	0.10		0.08	0.08	0.08	0.08	0.06	0.08	0.08	0.05	
11/20	0.15	0.12	0.13		0.08	0.18	0.14	0.13	0.09	0.07	0.08	0.07	
11/27	0.22	0.10	0.11		0.05	0.08	0.04	0.05	0.05	0.06	0.06	0.05	
12/4	0.25	0.07	0.09		0.05	0.12	0.06	0.08	0.08	0.02	0.15	0.04	
12/11	0.38	0.06	0.10		0.14	0.03	0.47	0.72	0.77	0.05	0.16	0.16	
12/18	0.30	0.11	0.16		0.15	0.18	0.16	0.11	0.08	0.22	0.11	0.30	
12/23	0.13	0.09	0.06		0.07	0.06	0.07	0.05	0.03	0.06	0.08	0.07	
12/31	0.11	0.06	0.03		0.05	0.04	0.04	0.03	0.06	0.06		0.04	

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

Results less than analytical limit of 0.02 pCi/m³ are indicated by a (-).

No entry indicates no analysis made.

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APPENDIX E
TABLE 2 (Part B)

CONCENTRATION OF RADIOACTIVE BETA PARTICULATES IN THE
AIR OF THE HANFORD ENVIRONS - 1968
pCi/m³ (Continuous samples)

Approx. Wk. End. Date	Perimeter Communities					
	Walla Walla	McNary Dam	Washtucna	Moses Lake	Ellensburg	Sunnyside
1/3	1.6	1.1	0.14	0.21	0.07	0.77
1/10	1.6	0.17	0.24	0.21	0.07	0.11
1/17	0.26	0.20	1.0	0.13	0.05	0.13
1/24	0.30	0.22	0.40	0.49	0.24	0.15
1/31	0.12	0.31	0.24	0.34	0.18	0.20
2/7	0.12	0.14	0.30	0.69	0.08	0.19
2/14	0.20	0.24	0.64	0.94	0.30	0.32
2/21	0.11	0.39	0.33	0.30	0.33	0.32
2/28	0.15	0.18	0.22	0.36	0.13	0.14
3/6	0.16	0.25	0.31	0.41	0.13	0.14
3/13	0.19	0.23	0.20	0.46	0.17	0.16
3/20	0.16	0.20	0.25	0.36	0.16	0.17
3/27	0.13	0.18	0.30	0.32	0.10	0.25
4/3	0.17	0.17	0.38	0.33	0.18	0.14
4/10	0.18	0.22	0.23	0.37	0.18	0.16
4/17	0.16	0.22	0.36	0.34	0.13	0.19
4/24	0.18		0.30	0.44	0.11	0.21
5/1	0.26		0.46	0.43	0.15	0.20
5/8	0.18		0.22	0.39	0.31	0.16
5/15	9.28	0.22	0.64	0.88	0.24	0.19
5/22	0.19	0.47	0.46	0.13	0.17	0.54
5/29	0.20	0.20	0.27	0.62	0.17	0.11
6/7	0.24	0.22	0.39	0.33	0.19	0.26
6/14	0.14	0.13	0.32	0.40	0.16	0.19
6/21	0.26	0.27	0.56	0.80	0.27	0.23
6/28	0.22	0.26	0.41	0.51	0.21	0.16

As a result of sampling schedules, the off date for some locations may differ by a few days from the date indicated.
Results less than analytical limit of 0.02 pCi/m³ are indicated by a (-).
No entry indicates no analysis made.

APPENDIX E
TABLE 2 (Part B Continued)

CONCENTRATION OF RADIOACTIVE BETA PARTICULATES IN THE
AIR OF THE HANFORD ENVIRONS - 1968
pCi/m³ (Continuous samples)

Approx. Wk. End. Date	Perimeter Communities					
	Walla Walla	McNary Dam	Washtucna	Moses Lake	Ellensburg	Sunnyside
7/5	0.18	0.17	0.18	0.26	0.19	0.23
7/12	0.26	0.26	0.43	0.41	0.18	0.16
7/19	0.14	0.13	0.23	0.32	0.20	0.18
7/26	0.28	0.24	0.43	0.36	0.21	0.20
8/2	0.32	0.22	0.74	0.57	0.27	0.22
8/9	0.31	0.34	0.42	0.38	0.27	0.30
8/16	0.18	0.17	0.38	0.36	0.09	0.14
8/23	0.16	0.12	0.18	0.21	0.09	0.15
8/30	0.13	0.09	0.24	0.18	0.09	0.12
9/6	0.14	0.26	0.27	0.23	0.16	0.20
9/13	0.17	0.16	0.20	0.32	0.17	0.14
9/20	0.10	0.09	0.18	0.24	0.11	0.08
9/27	0.12	0.10	0.12	0.17	0.10	0.14
10/4	0.21	0.19	0.25	0.40	0.10	0.13
10/11	0.10	0.09	0.13	0.15	0.10	0.08
10/18	0.09	0.10	0.12	0.12	0.07	0.11
10/25	0.10	0.08	0.13		0.08	0.11
11/1	0.10	0.10	0.15	0.39	0.08	0.08
11/8	0.07	0.08	0.12	0.11	0.10	0.08
11/15	0.09	0.07	0.12	0.11	0.06	0.15
11/22	0.07	0.06	0.12	0.27	0.07	0.08
11/29	0.05	0.18		0.10	0.05	0.06
12/6	0.03	0.02	0.06	0.10	0.06	0.07
12/13	3.9	0.48		0.76		0.12
12/20	3.9	0.23		0.27		0.06
12/27	0.08	0.06		0.12	0.21	0.07

As a result of sampling schedules, the off date for some locations may differ by a few days from the date indicated.
Results less than analytical limit of 0.02 pCi/m³ are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F

RADIONUCLIDES IN FARM PRODUCE
AND COMMERCIAL FOODSTUFFS

APPENDIX F

TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs, ^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Riverview Irrigation District - Farm No. 1</u>							
1-2-68	20	1100	-			-	-
1-8	51	1300	140			-	-
1-15	16	1300	-	-	5.1	-	-
1-22	44	1100	-			-	-
1-29	-	1200	-			-	-
2-5	-	1200	-			-	-
2-13	-	1200	-			-	-
2-19	-	1400	-			-	-
2-26	-	1400	-			-	-
3-4	23	1400	100			-	-
3-11	-	1300	-			-	-
3-18	55	1400	-			-	-
3-25	-	1400	-			-	-
4-1	22	1200	-			-	-
4-8	210	1300	-			-	-
4-15	-	1300	-	-	-	-	-
4-22	-	1300	-			-	-
4-29	-	1300	100			-	-
5-7	-	1300	-			-	-
5-13	90	1400	-			-	-
5-21	660	1000	200			-	-
5-27	1000	960	270			-	-
6-4	850	1100	290			-	-
6-10	1100	1200	370			-	-
6-18	1000	1300	350			-	-
6-25	730	1100	300			-	-
7-2	280	1100	330			4.2	-
7-8	830	1100	230			-	-
7-16	590	1300	190	-	8.7	-	-
7-22	510	1100	200			-	-
7-30	370	1200	200			-	-
8-5	500	1400	190			-	-
8-13	310	1300	180			-	-
8-27	670	1200	200			-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Riverview Irrigation District - Farm No. 1 (Cont.)

9-3	21	1300	-			-	-
9-10	980	1300	-			-	-
9-16	1000	1200	200			-	-
9-24	700	1200	160			-	-
9-30	430	820	140			-	-
10-8	680	1200	140			-	-
10-14	430	1200	110			-	-
10-22	350	1100	110	-	-	-	-
10-28	710	1100	150			-	-
11-5	430	1200	140			-	-
11-12	160	1200	-			-	-
11-19	130	1200	-			-	-
11-25	55	1200	-			-	-
12-2	40	1200	-			-	-
12-10	-	1100	-			-	-
12-16	-	1100	-			-	-
12-23	-	1100	-			-	-
12-30	-	1000	-			-	-

Riverview Irrigation District - Farm No. 2

4-2	-	980	-			-	-
4-9	170	1000	-			-	-
4-16	-	910	-			-	-
4-23	93	910	-			-	-
4-30	1100	990	360			3.7	-
5-7	1600	1000	300			-	-
5-14	960	1000	330			-	-
5-21	520	990	390			-	-
5-28	600	1100	450			-	-
6-4	1500	1000	480			-	-
6-11	1500	800	600			-	-
6-18	920	790	530			-	-
6-25	920	1000	740			-	-
7-2	680	1200	780			-	-
7-9	550	800	550			-	-
7-16	1300	1200	690			3.7	-
7-23	630	1100	680			-	-
7-30	880	1100	540			-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Riverview Irrigation District - Farm No. 2 (Cont.)</u>							
8-6	660	1000	480			-	-
8-13	560	1100	570			-	-
8-20	710	1300	600			-	-
8-27	190	1000	540			-	-
10-1	800	780	590			-	-
10-8	1100	1000	800			-	-
10-15	640	550	600			-	-
<u>Pasco Farm No. 1</u>							
1-30	-	980	-			-	-
2-6	-	820	-			-	-
2-13	-	930	-			-	-
2-20	-	1100	-			-	-
2-27	-	1200	-			-	-
3-5	-	900	-	-	6.9	-	-
3-12	-	1200	-			-	-
3-19	-	1000	-			-	-
3-26	-	1100	-			-	-
<u>Pasco Farm No. 2</u>							
1-2						-	
1-9						-	
1-16						-	
1-30						-	
2-13						-	
2-20						-	
2-27						-	
3-5						-	
3-12						-	
3-19						-	
3-26						-	
4-2						-	
4-9						-	
4-16						-	
4-23						-	
4-30						-	

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Pasco Farm No. 2 (Cont.)

5-7	-
5-14	-
5-21	-
5-28	-
6-4	-
6-11	-
6-18	-
6-25	-
7-2	-
7-16	-
7-23	-
7-30	-
8-7	-
8-13	-
8-20	-
8-27	-
9-3	-
9-10	-
9-17	-
9-24	-
10-1	-
10-8	-
10-15	-
10-22	-
10-29	-
11-5	-
11-12	-
11-19	-
11-26	-
12-3	-
12-10	-
12-17	-
12-23	-
12-31	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
 TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Pasco Farm No. 3</u>							
9-3	21	1400	-			-	-
9-10	28	1500	-			-	-
9-17	53	1300	-			-	-
9-24	41	1300	-			-	-
10-1	20	1300	-			-	-
10-8	-	1300	-			-	-
10-15	-	1300	-			-	-
10-22	-	1100	-			-	-
10-29	-	1100	-			-	-
11-5	21	1200	-			-	-
11-12	-	980	-			-	-
11-19	78	1100	-			-	-
11-26	-	1000	-			-	-
12-3	22	470	-			-	-
<u>Eltopia Farm No. 1</u>							
1-2						-	
1-9						-	
1-16						-	
1-23						-	
1-30						-	
2-6						-	
2-13						-	
2-20						-	
2-27						-	
3-5						-	
3-12						-	
3-19						-	
3-26						-	
4-2						-	
4-9						-	
4-17						-	

Results less than analytical limit are indicated by a (-).
 No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Eltopia Farm No. 2

1-2						-	
1-9						-	
1-16						-	
1-23						-	
1-30						-	
2-6						4.1	
2-13						-	
2-20						-	
2-27						-	
3-5						-	
3-12						-	
3-19						-	
3-26						-	
4-2						-	
4-9						-	
4-16						-	
4-23						-	
4-30						4.0	
5-7						-	
5-14						-	
5-21						-	
5-28						-	
6-4						3.0	
6-11						-	
6-18						-	
6-25						-	
7-2						-	
7-9						-	
7-16		1200	-			-	-
7-23		1300	-			-	-
7-30		1200	-			-	-
8-6		1500	-			-	-
8-13		1400	-			-	-
8-20		1200	-			-	-
8-27		1200	-			-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Eltopia Farm No. 2 (Cont.)

9-3	1200	-	-	-	-	-
9-10	1300	-	-	-	-	-
9-17	1300	-	-	-	-	-
9-24	1100	-	-	-	-	-
10-1	1200	-	-	-	-	-
10-8	1300	-	-	-	-	-
10-15	1100	-	-	-	-	-
10-22	1000	-	-	-	-	-
10-29	1000	-	-	-	-	-
11-5	1000	-	-	-	-	-
11-12	1200	-	-	-	-	-
11-19	1200	-	-	-	-	-
11-26	1100	-	-	-	-	-
12-3	1100	-	-	-	-	-
12-10	1200	-	-	-	-	-
12-17	1100	-	-	-	-	-
12-23	1400	-	-	-	-	-
12-31	1100	-	-	-	-	-

West Richland Farm No. 1

1-4	1200	-	-	-	-	-
1-11	1300	-	-	-	-	-
1-18	1300	-	-	-	-	-
1-25	1300	-	-	-	-	-
2-1	1400	-	-	-	-	-
2-8	1300	-	-	-	-	-
2-15	1300	-	-	-	-	-
2-22	1500	-	-	-	-	-
2-29	1300	-	-	-	-	-
3-7	1200	-	-	-	-	-
3-14	1200	-	-	-	-	-
3-21	1200	-	-	-	-	-
3-28	1400	-	-	-	-	-
4-4	1100	-	-	-	-	-
4-11	1200	-	-	-	-	-
4-18	1000	-	-	-	-	-
4-25	1400	-	-	-	-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

West Richland Farm No. 1 (Cont.)

5-2	960	-	-	-
5-9	1100	-	-	-
5-16			-	
5-23			-	
5-29			-	
6-6			-	
6-13			-	
6-20			-	
6-27			-	
7-3			-	
7-11	680	-	-	-
7-18	1300	-	-	-
7-25	1600	-	-	-
8-1	1500	-	-	-
8-8	1400	-	-	-
8-15	1300	-	-	-
8-22	1200	-	-	-
8-29	1200	-	-	-
9-5	1300	-	-	-
9-12	1300	-	-	-
9-19	1400	-	-	-
9-26	1100	-	-	-
10-3	1100	-	-	-
10-10	1100	-	-	-
10-17	1100	-	-	-
10-24	920	-	-	-
10-31	970	-	-	-
11-7	1000	-	4.8	-
11-14	1000	-	-	-
11-21	1100	-	-	-
11-27	960	-	-	-
12-5	1000	-	-	-
12-12	1200	-	-	-
12-19	1100	-	-	-
12-26	1200	-	-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs - ^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Benton City Farm</u>							
1-4						-	
1-11						-	
1-18						-	
1-25						-	
2-1						-	
2-8						-	
2-15						-	
2-22						-	
2-29						-	
3-7						-	
3-14						-	
3-21						-	
3-28						-	
4-4						-	
4-11						-	
4-18						-	
4-25						-	
5-2						-	
5-9						-	
5-16						-	
5-23						-	
5-29						-	
6-6						-	
6-13						-	
6-20						-	
6-27						-	
7-3						-	
7-11						-	
7-18						-	
7-25						-	
8-1						-	
8-8						-	
8-15						-	
8-22						-	
8-29						-	

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Benton City Farm (Cont.)

9-5	-
9-12	-
9-19	-
9-26	-
10-3	-
10-10	-
10-17	-
10-24	-
10-31	-
11-7	-
11-14	-
11-21	-
11-27	-
12-5	-
12-12	-
12-19	-
12-26	-

Mesa Farm

1-3	13.
1-10	12.
1-17	25.
1-24	18.
1-31	-
2-7	-
2-14	-
2-21	-
2-28	-
3-6	-
3-13	-
3-20	-
3-27	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Mesa Farm (Cont.)

4-3	-
4-10	-
4-17	-
4-24	-
5-1	-
5-8	-
5-15	-
5-22	-
5-29	-
6-5	-
6-12	-
6-19	-
6-26	-
7-3	-
7-10	4.5
7-17	3.1
7-24	-
7-31	-
8-7	-
8-15	-
8-21	-
8-28	-
9-4	-
9-11	-
9-18	-
9-25	-
10-3	-
10-9	-
10-16	-
10-23	-
10-30	-
11-6	-
11-13	-
11-20	-
11-27	-
12-4	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

<u>CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968</u>							
pCi/l							
<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Mesa Farm</u> (Cont.)							
12-11						-	
12-18						-	
12-23						-	
12-31						-	
<u>Finley Farm</u>							
8-1						-	
8-8						-	
8-15						-	
8-22						-	
8-29						-	
9-5						-	
9-12						-	
9-19						-	
9-26						-	
10-4						-	
10-10						-	
10-17						-	
10-24						-	
10-31						-	
11-7						-	
11-14						-	
11-21						-	
11-27						-	
12-5						-	
12-13						-	
12-19						-	
12-27						-	

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Milk Shed Sample</u>							
<u>Columbia Basin</u>							
1/4		1100	-	-		-	-
1/19		1100	-	-	2.9	-	-
2/8		1300	-			-	-
2/22		1300	-			-	-
3/19		930	-			-	-
4/4		1200	-			-	-
4/18		1200	-	-	-	-	-
5/9		1300	-			-	-
6/6		1400	-			-	-
6/21		1300	-			-	-
7/8		1100	-			-	-
7/25	-	1500	-		Lost	-	-
8/8	-	1300	-			-	-
8/28	-	1200	-			-	-
9/9	-	1400	-			-	-
9/19	3.4	1100	-			-	-
10/11	-	1400	-			-	-
10/28	-	1100	-	-	2.8	-	-
11/7	-	1300	-			-	-
11/21	-	1100	-			-	-
12/3	-	1300	-			-	-
12/20	-	980	-			-	-
12/20	-	980	-			-	-
<u>Local Purchase - Commercial Milk</u>							
<u>Brand A</u>							
1/4						-	
1/25				-	4.1	-	
2/15						-	
2/29						-	
3/21						-	
4/11						-	
4/25				-	3.0	-	
5/16						-	
5/29						-	
6/13						-	
6/27						-	

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30

Brand A (Continued)

7/11						-	
7/25						-	
8/15	-			-	-	-	
8/29						-	
9/12						-	
9/26						-	
10/17						-	
10/31						-	
11/14	-			2.3	-	-	
11/27						-	
12/12						-	
12/26						-	

Brand F

1/4					3.1	-	
2/8						-	
3/7						-	
4/4				-	3.9	-	
5/9						-	
6/6				-	5.0	-	
7/3						-	
8/8						-	
9/5				-	2.1	-	
10/11						-	
11/7						-	
12/5				5.3	-	-	

Brand H

1/4	1000	-	-	10.	-	-
2/8	1300	-			-	-
3/7	1200	-			-	-
4/4	1000	-	-	13.	-	-
5/9	930	-			-	-
6/6	1300	-			-	-
7/3	1200	-	-	10.	-	34.

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX F
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1968
pCi/l

<u>Date</u>	<u>³²P</u>	<u>⁴⁰K</u>	<u>⁶⁵Zn</u>	<u>⁸⁹Sr</u>	<u>⁹⁰Sr</u>	<u>¹³¹I</u>	<u>¹³⁷Cs-^{137m}Ba</u>
Analytical Limit	20	400	100	2	2	3	30
<u>Brand H</u> (Continued)							
8/8		1300	-			-	43.
9/5		1300	-			-	63.
10/11		1200	-	-	13.	-	30.
11/7		1300	-			-	-
12/5		1300	-			-	-
<u>Brand Z</u>							
1/4		1100	-		3.9	-	-
1/25		1300	-	-	4.6	-	-
2/15		1300	-			-	-
2/29		1200	-			-	-
3/14		1200	-			-	-
3/28		1100	-			-	-
4/11		1100	-			-	-
4/25		1300	-	-	-	-	-
5/16						-	
5/29						-	
6/13						-	
6/27						-	
7/11		1100	-			-	-
7/25		1200	-			-	-
8/15		1400	-			-	-
8/29		1100	-			-	-
9/12		1000	-			-	-
9/26		1100	-	-	3.9	-	-
10/17		1100	-			-	-
10/31		980	-			-	-
11/14		1100	-			6.7	-
11/27		1100	-			-	-
12/12		1100	-			-	-
12/26		1200	-	-	4.5	-	-

Results less than analytical limit are indicated by a (-).
No entry indicates no analysis made.

APPENDIX G

^{131}I IN BEEF THYROIDS

APPENDIX G

TABLE 1

¹³¹I IN BEEF THYROIDS FROM CATTLE
SLAUGHTERED AT SEVERAL LOCATIONS - 1968

Picocuries/gram, wet weight

<u>Date</u> <u>Sampled</u>	<u>Thyroid</u> <u>Wt (gm)</u>	¹³¹ I <u>Concentration</u>	<u>Grazing Area</u>
<u>Pasco, Washington</u>			
1-5-68	25	<1	Kennewick
1-8	25	<1	Connell
1-9	48	<1	Hermiston, Oregon
1-16	16	<1	Richland
1-16	42	<1	Pasco
1-17	41	<1	Walla Walla
1-22	41	<1	Othello
1-23	37	10	Moses Lake
1-25	30	<1	Eltopia
1-24	32	3	Walla Walla
1-29	36	<1	West Richland
1-30	24	<1	Connell
2-5	33	16	Hermiston, Oregon
2-5	39	<1	Othello
2-8	77	<1	Prosser
2-13	32	<1	Burbank
2-13	38	<1	Outlook
2-14	45	<1	Eltopia
2-19	34	<1	Kennewick
2-20	63	<1	Pasco
2-20	29	<1	Warden
2-26	29	<1	Outlook
2-27	34	11	Hermiston, Oregon
2-27	63	<1	Walla Walla
3-4	40	<1	Othello
3-5	26	21	Prosser
3-6	42	<1	Mesa
3-9	43	4	Hermiston, Oregon
3-11	41	<1	Moses Lake
3-13	28	<1	Cunningham
3-15	50	8	Walla Walla
3-18	20	<1	Warden
3-20	28	3	Burbank
3-25	31	<1	Connell
3-26	24	<1	Cunningham
3-27	15	<1	Kennewick

APPENDIX G
TABLE 1 (Continued)

¹³¹I IN BEEF THYROIDS FROM CATTLE
SLAUGHTERED AT SEVERAL LOCATIONS - 1968
Picocuries/gram, wet weight

<u>Date</u> <u>Sampled</u>	<u>Thyroid</u> <u>Wt (gm)</u>	¹³¹ I <u>Concentration</u>	<u>Grazing Area</u>
<u>Pasco, (Continued)</u>			
4-1	18	<1	Richland
4-1	30	<1	Eltopia
4-2	26	<1	Prosser
4-8	13	<1	Kennewick
4-8	29	1	Cunningham
4-11	31	<1	Warden
4-11	89	4	Walla Walla
4-12	84	<1	Kahlotus
4-15	15	<1	Prosser
4-22	34	13	Mesa
4-23	35	6	Moses Lake
4-24	26	3	Pasco
5-1	39	<1	Sunnyside
5-1	17	5	Kennewick
5-2	12	<1	Walla Walla
5-6	56	<1	Prosser
5-8	26	<1	Warden
5-8	9.3	<1	Benton City
5-14	62	4	Walla Walla
5-16	40	<1	Connell
5-16	21	<1	Mesa
5-20	39	<1	Burbank
5-22	13	<1	Kahlotus
5-23	29	<1	Eltopia
5-27	30	2	Warden
5-29	36	8	Prosser
5-29	18	<1	Mesa
5-31	38	<1	Richland
5-31	23	<1	Walla Walla
6-3	30	<1	Connell
6-7	37	<1	Mesa
6-11	21	<1	Prosser
6-11	68	<1	Pasco
6-14	18	<1	Eltopia
6-19	32	<1	Burbank
6-19	46	<1	Warden
6-26	17	<1	Walla Walla
6-27	39	<1	Richland
6-27	28	<1	Connell

APPENDIX G
TABLE 1 (Continued)

¹³¹I IN BEEF THYROIDS FROM CATTLE
SLAUGHTERED AT SEVERAL LOCATIONS - 1968
Picocuries/gram, wet weight

<u>Date</u> <u>Sampled</u>	<u>Thyroid</u> <u>Wt (gm)</u>	¹³¹ I <u>Concentration</u>	<u>Grazing Area</u>
<u>Pasco, (Continued)</u>			
7-1	34	<1	Warden
7-3	42	1	Kennewick
7-3	28	<1	Eltopia
7-8	34	<1	Mesa
7-11	29	<1	Moses Lake
7-11	22	<1	Walla Walla
7-15	31	1	Burbank
7-15	27	1	Richland
7-16	16	1	Prosser
7-24	26	<1	Connell
7-23	22	2	Kennewick
7-25	31	1	Pasco
7-29	30	<1	Warden
7-30	41	<1	Eltopia
7-31	26	2	Burbank
8-5	30	<1	Walla Walla
8-6	28	<1	Richland
8-6	46	<1	Moses Lake
8-14	35	<1	Connell
8-13	19	<1	Eltopia
8-12	10	<1	Prosser
8-19	51	<1	Prosser
8-20	33	2	Burbank
8-21	25	<1	Milton-Freewater, Oregon
8-26	40	1	Prosser
8-27	28	<1	Pasco
8-28	25	<1	Eltopia
9-5	36	<1	Walla Walla
9-3	27	2	Mesa
9-4	34	<1	Hermiston, Oregon
9-9	47	<1	Richland
9-10	29	5	Benton City
9-10	36	<1	Prosser
9-16	43	<1	Hermiston, Oregon
9-17	16	<1	Warden
9-19	76	<1	Kennewick
9-25	44	<1	Pasco
9-24	25	1	Moses Lake
9-24	34	3	Prosser

APPENDIX G
TABLE 1 (Continued)

^{131}I IN BEEF THYROIDS FROM CATTLE
SLAUGHTERED AT SEVERAL LOCATIONS - 1968
Picocuries/gram, wet weight

<u>Date</u> <u>Sampled</u>	<u>Thyroid</u> <u>Wt (gm)</u>	^{131}I <u>Concentration</u>	<u>Grazing Area</u>
<u>Pasco, (Continued)</u>			
9-30	42	<1	Burbank
9-30	44	2	Walla Walla
10-2	34	<1	Hermiston, Oregon
10-10	73	<1	Pasco
10-10	29	<1	Kennewick
10-7	26	<1	Mesa
10-14	41	<1	Warden
10-15	29	<1	Wheeler
10-15	35	<1	Eltopia
10-21	16	1	Connell
10-21	55	<1	Richland
10-22	49	<1	Walla Walla
10-28	25	1	Kiona
10-29	44	<1	Prescott
10-30	33	<1	Starbuck
11-11	25	2	Hermiston, Oregon
11-11	56	<1	Walla Walla
11-11	33	<1	Prosser
11-12	29	<1	West Richland
11-13	44	<1	Sunnyside
11-14	35	1	Burbank
11-19	12	3	Prosser
11-19	33	2	Kennewick
11-20	30	<1	Warden
11-25	36	<1	Eltopia
11-26	34	<1	Pasco
11-27	33	<1	Hermiston, Oregon
12-2	32	<1	Warden
12-4	31	<1	Burbank
12-5	30	<1	Eltopia
12-9	50	<1	Mesa
12-10	26	<1	Walla Walla
12-13	23	1	Hermiston, Oregon
12-16	19	<1	Connell
12-17	36	<1	Richland
12-19	23	<1	Warden
12-23	88	2	Hermiston, Oregon
12-24	39	<1	Pasco
12-24	20	<1	Eltopia

APPENDIX G
TABLE 1 (Continued)

¹³¹I IN BEEF THYROIDS FROM CATTLE
SLAUGHTERED AT SEVERAL LOCATIONS - 1968
Picocuries/gram, wet weight

<u>Date</u> <u>Sampled</u>	<u>Thyroid</u> <u>Wt (gm)</u>	¹³¹ I <u>Concentration</u>	<u>Grazing Area</u>
<u>Pasco, (Continued)</u>			
12-30	45	<1	Moses Lake
12-31	34	3	Walla Walla
12-31	23	<1	Richland
<u>Moses Lake, Washington</u>			
1-6	38	<1	Moses Lake
1-6	20	<1	Moses Lake
1-6	63	<1	Moses Lake
1-6	14	<1	Moses Lake
1-6	40	<1	Moses Lake
1-20	26	<1	Moses Lake
1-20	33	2	Moses Lake
1-20	86	1	Moses Lake
1-20	78	<1	Moses Lake
1-20	50	<1	Moses Lake
2-3	48	8	Moses Lake
2-3	40	<1	Moses Lake
2-3	51	4	Moses Lake
2-3	72	7	Moses Lake
2-3	36	<1	Ritzville
2-17	28	3	Moses Lake
2-17	17	<1	Moses Lake
2-17	27	<1	Moses Lake
2-17	31	<1	Moses Lake
2-17	76	<1	Warden
3-2	69	2	Moses Lake
3-2	37	<1	Moses Lake
3-2	64	<1	Moses Lake
3-2	30	<1	Moses Lake
3-2	58	2	Moses Lake
3-16	30	1	Moses Lake
3-16	44	<1	Moses Lake
3-16	18	2	Moses Lake
3-16	21	2	Othello
3-16	43	<1	Washtuccna
3-30	220	<1	Composite
4-13	300	<1	Composite
4-27	270	2	Composite
5-11	230	<1	Composite

APPENDIX H
TABLE 2

IONIZATION CHAMBER MEASUREMENTS IN THE COLUMBIA RIVER - 1968

Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day
<u>Vernita</u>					
12/27- 1/2	0.31	2/27- 3/5	0.71	5/7 - 5/14	ND
1/2 - 1/9	0.31	3/5 - 3/12	0.20	5/14- 5/21	0.26
1/9 - 1/16	0.79	3/12- 3/19	0.23	5/21- 5/28	ND
1/16- 1/23	0.86	3/19- 3/26	0.85	5/28- 6/4	ND
1/23- 1/30	ND	3/26- 4/2	0.70	6/4 - 6/11	0.43
1/30- 2/6	1.26	4/2 - 4/9	0.52	6/11- 6/18	0.64
2/6 - 2/13	0.42	4/9 - 4/11	0.30	6/18- 6/25	0.54
2/13- 2/20	1.05	4/11- 5/7	ND	6/25- 7/2	0.42
2/20- 2/27	ND				
<u>Priest Rapids Gauge</u>					
7/9 - 7/16	0.25	9/3 - 9/10	0.34	10/29-11/5	0.27
7/16- 7/23	0.43	9/10- 9/17	0.40	11/5 -11/12	0.26
7/23- 7/30	0.99	9/17- 9/24	0.43	11/12-11/19	0.27
7/30- 8/6	0.49	9/24-10/1	0.56	11/19-11/26	0.31
8/6 - 8/13	0.37	10/1 -10/8	0.34	11/26-12/3	0.63
8/13- 8/20	0.16	10/8 -10/15	0.56	12/3 -12/30	ND
8/20- 8/27	0.07	10/15-10/22	0.39		
8/27- 9/3	0.55	10/22-10/29	0.47		
<u>Old Hanford Ferry</u>					
12/27- 1/2	1.16	2/6 - 2/13	2.98	3/12- 3/19	ND
1/2 - 1/9	1.16	2/13- 2/20	2.60	3/19- 3/26	2.41
1/9 - 1/16	2.40	2/20- 2/27	3.27	3/26- 4/2	3.43
1/16- 1/23	3.16	2/27- 3/5	6.13	4/2 - 4/9	2.88
1/23- 1/30	2.80	3/5 - 3/12	ND	4/9 - 4/11	2.44
1/30- 2/6	2.16			Discontinued, moved to 100-F	

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ND - No data or invalid measurement.

APPENDIX H
TABLE 2 (Continued)

IONIZATION CHAMBER MEASUREMENTS IN THE COLUMBIA RIVER - 1968

Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day
<u>100-F Area</u>					
5/7 - 5/14	6.10	7/23- 7/30	4.23	10/1 -10/8	ND
5/14- 5/21	5.21	7/30- 8/6	ND	10/8 -10/10	6.80
5/21- 5/28	1.41	8/6 - 8/13	4.94	10/10-10/15	4.90
5/28- 6/4	3.60	8/13- 3/20	4.98	10/15-10/18	8.56
6/4 - 6/11	ND	8/20- 8/27	6.28	10/18-10/22	5.70
6/11- 6/18	1.33	8/27- 9/3	7.30	10/22-10/29	5.63
6/18- 6/25	3.88	9/3 - 9/10	7.23	10/29-11/5	4.91
6/25- 7/2	ND	9/10- 9/17	6.88	11/5 -11/12	4.54
7/2 - 7/9	ND	9/17- 9/24	ND	11/12-11/19	6.66
7/9 - 7/16	5.20	9/24-10/1	ND	11/19-11/26	6.93
7/16- 7/23	4.16			11/26-12/3	6.43
				12/3 -12/30	ND
<u>Ringold</u>					
12/27- 1/2	2.22	3/12- 3/19	ND	9/24-10/1	2.56
1/2 - 1/9	1.07	3/19- 3/26	ND	10/1 -10/8	1.39
1/9 - 1/16	1.80	3/26- 4/2	1.47	10/8 -10/15	1.39
1/16- 1/23	1.74	4/2 - 4/9	ND	10/15-10/22	2.57
1/23- 1/30	1.79	4/9 - 4/11	2.06	10/22-10/29	1.77
1/30- 2/6	1.86	4/11- 5/7	ND	10/29-11/5	ND
2/6 - 2/13	0.99	5/7 - 5/14	2.77	11/5 -11/12	ND
2/13- 2/20	1.62	5/14- 5/27	ND	11/12-11/19	ND
2/20- 2/27	1.36	8/27- 9/3	2.39	11/19-11/26	1.90
2/27- 3/5	1.77	9/3 - 9/10	1.24	11/26-12/3	1.90
3/5 - 3/12	ND	9/10- 9/17	1.92	12/3 - 12/30	ND
		9/17- 9/24	1.33		

ND - No data or invalid measurement.

APPENDIX H
TABLE 2 (Continued)

IONIZATION CHAMBER MEASUREMENTS IN THE COLUMBIA RIVER - 1968

Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day
<u>300 Area</u>					
12/27- 1/2	ND	4/11- 5/14	ND	8/27- 9/3	2.05
1/2 - 1/9	4.85	5/14- 5/21	2.93	9/3 - 9/10	2.52
1/9 - 1/16	3.82	5/21- 5/28	2.80	9/10- 9/17	2.05
1/16- 1/23	5.27	5/28- 6/4	4.22	9/17- 9/24	2.21
1/23- 1/30	ND	6/4 - 6/11	1.54	9/24-10/1	2.46
1/30- 2/6	3.81	6/11- 6/18	1.54	10/1 -10/8	2.70
2/6 - 2/13	4.14	6/18- 6/25	1.58	10/8 -10/15	2.13
2/13- 2/20	3.80	6/25- 7/2	2.09	10/15-10/22	3.29
2/20- 2/27	3.11	7/2 - 7/9	1.37	10/22-10/29	3.31
2/27- 3/5	4.20	7/9 - 7/16	1.84	10/29-11/5	3.51
3/ - 3/12	4.02	7/16- 7/23	1.09	11/5 -11/12	3.67
3/12- 3/19	3.52	7/23- 7/30	1.71	11/12-11/19	4.27
3/19- 3/26	3.15	7/30- 8/6	2.20	11/19-11/26	3.64
3/26- 4/2	2.60	8/6 - 8/13	2.54	11/26-12/30	ND
4/2 - 4/9	2.33	8/13- 8/20	1.91		
4/9 - 4/11	2.22	8/20- 8/27	2.03		
<u>Richland Marina</u>					
12/27- 1/2	1.21	1/30- 2/6	1.75	3/5 - 3/12	ND
1/2 - 1/9	1.43	2/6 - 2/13	1.76	3/12- 3/19	1.92
1/9 - 1/16	0.87	2/13- 2/20	1.33	3/19- 3/26	1.75
1/16- 1/23	ND	2/20- 2/27	1.36	3/26- 4/2	1.98
1/23- 1/30	ND	2/27- 3/5	2.06	4/2 - 4/9	1.46

ND - No data or invalid measurement.

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APPENDIX H
TABLE 2 (Continued)

IONIZATION CHAMBER MEASUREMENTS IN THE COLUMBIA RIVER - 1968

Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day	Measurement Period	Exposure Rate mR/Day
<u>Richland Pump House</u>					
3/12- 3/19	1.66	6/25- 7/2	0.97	9/17- 9/24	2.02
3/19- 3/26	1.61	7/2 - 7/9	1.19	9/24-10/1	1.89
3/26- 4/2	1.09	7/9 - 7/16	1.27	10/1 -10/8	2.19
4/2 - 4/9	0.85	7/16- 7/23	1.00	10/8 -10/15	1.49
4/9 - 4/11	2.81	7/23- 7/30	0.78	10/15-10/22	2.33
4/11- 5/14	ND	7/30- 8/6	1.21	10/22-10/29	1.93
5/14- 5/21	1.86	8/6 - 8/13	1.95	10/29-11/5	2.23
5/21- 5/28	0.56	8/13- 8/20	1.70	11/5 -11/12	2.21
5/28- 6/4	1.69	8/20- 8/27	1.58	11/12-11/19	2.69
6/4 - 6/11	2.31	8/27- 9/3	1.94	11/19-11/26	2.43
6/11- 6/18	0.41	9/3 - 9/10	1.53	11/26-12/3	2.50
6/18- 6/25	0.86	9/10- 9/17	2.11	12/3 -12/30	ND
<u>Pasco Pump House</u>					
7/2 - 7/9	0.73	8/27- 9/3	2.17	10/15-10/22	2.30
7/9 - 7/16	1.73	9/3 - 9/10	2.38	10/22-10/29	2.34
7/16- 7/23	1.26	9/10- 9/17	2.39	10/29-11/5	2.63
7/23- 7/30	1.81	9/17- 9/24	2.56	11/5 -11/12	2.93
7/30- 8/6	2.18	9/24-10/1	ND	11/12-11/19	2.71
8/6 - 8/13	2.53	10/1 -10/8	2.94	11/19-11/26	2.73
8/13- 8/20	1.48	10/8 -10/15	2.56	11/26-12/3	3.66
8/20- 8/27	1.68			12/3 -12/30	ND

ND - No data or invalid measurement.

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BNWL-1341 APP

APPENDIX H
TABLE 3

EXTERNAL EXPOSURE RATE MEASUREMENT AT 3' ABOVE THE
COLUMBIA RIVER SHORELINE AT THE RICHLAND TRAVERSE AND AT SACAJAWEA - 1968

<u>Date</u>	<u>Exposure Rate, μR/hr</u>	<u>Date</u>	<u>Exposure Rate, μR/hr</u>
<u>Richland Traverse</u>		6/5	36
1/17	42	6/12	16
2/21	54	6/19	26
3/21	50	6/24	34
5/3	85	6/26	60
5/28	42	7/5	32
6/27	24	7/10	15
7/25	34	7/17	22
8/29	25	7/24	26
10/2	60	7/31	40
11/13	40	8/7	15
12/12	29	8/15	28
		8/21	20
		8/28	36
<u>Sacajawea</u>		9/4	20
1/3	23	9/11	26
1/10	20	9/18	22
1/17	14	9/25	22
1/24	20	10/2	35
1/31	30	10/11	24
2/7	25	10/16	28
2/14	40	10/23	35
2/21	50	10/30	30
2/28	27	11/6	45
3/6	22	11/13	30
2/13	19	11/20	37
3/20	30	11/27	20
3/27	22	12/4	32
4/3	20	12/12	25
4/10	20	12/18	22
4/17	20	12/23	22
5/1	24	12/31	10
5/8	30		
5/15	30		
5/22	25		
5/27	32		
5/29	36		

APPENDIX I

CHEMICAL CHARACTERISTICS OF COLUMBIA RIVER WATER

APPENDIX I
TABLE 1

CHEMICAL CHARACTERISTICS OF COLUMBIA RIVER WATER AT VERNITA - 1968
(Results in ppm)

<u>Date</u>	<u>Mg</u>	<u>Fe</u>	<u>Cu</u>	<u>Ca</u>	<u>SO₄</u>	<u>PO₄</u>	<u>Cl</u>	<u>Diss.</u> <u>O₂</u>	<u>Phth</u> <u>Alk.</u>	<u>M.O.</u> <u>Alk.</u>	<u>Hardness</u>	<u>Solids</u>
1/2	4	0.03	0.001	23	12	0.10	0.20	12	2	55	75	99
1/16	4	0.02	0.006	25	13	0.08	0.15	9	2	58	78	72
2/6	4	0.01	0.003	23	14	0.03	0.15	12	1	59	75	100
2/20	4	0.01	0.003	28	13	0.08	0.35	13	2	60	86	100
3/5	3	0.07	0.002	26	14	0.12	0.35	11	0	54	79	87
3/19	4	0.05	0.002	29	20	0.16	0.20	14	2	59	87	110
4/2	4	0.20	0.002	25	24	0.12	0.25	*	2	54	27	83
4/16	3	0.03	0.005	28	13	0.12	0.27	12	1	57	82	92
5/7	4	0.03	0.002	26	15	0.08	0.30	11	2	57	82	100
5/23	3	0.02	ND	26	12	0.08	0.25	12	1	58	79	94
6/4	3	0.03	0.003	23	11	0.03	0.25	12	2	53	72	72
6/18	3	0.07	0.003	23	10	0.09	0.15	12	2	50	68	79
7/2	3	0.03	0.003	22	12	0.05	0.25	12	1	51	68	99
7/16	3	0.03	0.006	27	9	0.02	0.25	12	1	50	68	80
8/6	2	0.03	0.004	25	8	0.001	0.15	11	2	54	73	85
8/20	2	0.02	0.002	25	8	0.01	0.15	10	2	53	71	80
9/3	3	0.01	0.01	24	11	0.006	0.25	10	2	50	70	84
9/17	3	0.03	0.005	24	9	0.002	0.20	9	2	52	70	97
10/8	3	0.03	0.003	23	11	0.02	0.15	11	0	52	70	76
10/22	3	0.01	ND	24	11	0.04	0.35	10	1	49	72	82

ND - Not detected.

* Defective sample.

APPENDIX I
TABLE 1 (Continued)

CHEMICAL CHARACTERISTICS OF COLUMBIA RIVER WATER AT VERNITA - 1968
(Results in ppm)

<u>Date</u>	<u>Mg</u>	<u>Fe</u>	<u>Cu</u>	<u>Ca</u>	<u>SO₄</u>	<u>PO₄</u>	<u>Cl</u>	Diss. <u>O₂</u>	Phth <u>Alk.</u>	M.O. <u>Alk.</u>	<u>Hardness</u>	<u>Solids</u>
11/5	3	0.02	ND	22	7	0.02	0.15	8	1	54	69	87
11/19	3	0.05	0.006	25	11	0.02	0.25	9	1	52	72	76
12/3	2	0.02	0.006	27	12	0.08	0.25	11	4	55	77	84
12/17	4	0.04	ND	24	11	0.03	0.30	12	2	54	75	84

ND - Not detected.

APPENDIX I
TABLE 2

CHEMICAL CHARACTERISTICS OF COLUMBIA RIVER WATER AT HANFORD
AND 100F = 1968
(Results in ppm)

<u>Date</u>	<u>Mg</u>	<u>Fe</u>	<u>Cu</u>	<u>Ca</u>	<u>SO₄</u>	<u>PO₄</u>	<u>Cl</u>	<u>Diss.</u> <u>O₂</u>	<u>Phth</u> <u>Alk.</u>	<u>M.O.</u> <u>Alk.</u>	<u>Hardness</u>	<u>Solids</u>
<u>Hanford</u>												
1/2	4	0.04	ND	26	15	0.06	0.35	12	4	59	83	95
1/16	4	0.01	0.001	25	15	0.06	0.25	12	2	55	79	84
2/6	5	0.02	0.001	24	14	0.01	0.80	12	1	61	79	95
2/20	4	0.01	0.001	28	13	0.06	0.42	12	2	62	84	100
3/5	4	0.08	0.002	26	15	0.12	0.27	11	0	57	81	84
3/19	3	0.05	0.003	30	18	0.15	0.25	14	1	60	88	120
4/2	3	0.17	0.002	26	15	0.10	0.25	13	2	53	27	85
4/16	3	0.03	0.005	27	12	0.09	0.30	12	1	58	82	92
<u>100F</u>												
5/7	4	0.03	0.001	27	19	0.12	0.30	12	1	56	82	99
5/23	3	0.01	0.011	25	10	0.04	0.30	12	1	57	77	98
6/4	3	0.03	0.005	23	10	0.05	0.30	11	2	52	72	77
6/18	3	0.07	0.002	22	9	0.10	0.25	13	1	50	68	72
7/2	2	0.02	0.008	23	10	0.05	0.15	12	2	51	67	96
7/16	3	0.04	0.007	26	8	0.02	0.30	11	1	49	65	78
8/6	3	0.03	0.007	27	7	0.002	0.20	10	2	58	79	86
8/20	3	0.03	0.002	27	10	0.006	0.27	10	3	59	79	78
9/3	3	0.01	0.005	24	9	0.006	0.35	10	2	50	71	83
9/17	3	0.03	0.006	26	7	0.002	0.27	9	2	55	75	97

ND - Not detected.

APPENDIX I
TABLE 2 (Continued)

CHEMICAL CHARACTERISTICS OF COLUMBIA RIVER WATER AT HANFORD
AND 100F - 1968
(Results in ppm)

<u>Date</u>	<u>Mg</u>	<u>Fe</u>	<u>Cu</u>	<u>Ca</u>	<u>SO₄</u>	<u>PO₄</u>	<u>Cl</u>	<u>Diss.</u> <u>O₂</u>	<u>Phth</u> <u>Alk.</u>	<u>M.O.</u> <u>Alk.</u>	<u>Hardness</u>	<u>Solids</u>
<u>100F (Continued)</u>												
10/8	3	0.02	0.009	24	11	0.01	0.25	10	0	51	71	78
10/22	3	0.02	0.010	25	10	0.05	0.30	9	0	52	74	83
11/5	4	0.02	ND	23	9	0.02	0.25	10	1	55	73	93
11/19	3	0.06	0.004	21	16	0.03	0.25	10	ND	52	72	75
12/3	2	0.02	0.009	28	11	0.08	0.30	10	4	56	79	84
12/17	4	0.04	ND	24	10	0.08	0.30	11	1	54	76	91

ND - Not detected.

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