

APPENDIX C-3
SUMMARY OF BIOLOGICAL SAMPLE DATA

TABLE C-3.1
 RADIOACTIVITY CONCENTRATIONS IN MILK - 1987
 ($\mu\text{Ci/mL}$)

LOCATION	H-3	Sr-90	I-129	Cs-134	Cs-137
NNW Farm (BFMREED) 1st Qtr 1987	< 2.0 E-07	2.61 \pm 0.4 E-09	< 5.0 E-10	< 1.27 E-08	< 1.51 E-08
WNW Farm (BFMCOBO) 1st Qtr 1987	< 2.0 E-07	1.89 \pm 0.4 E-09	< 6.0 E-10	< 8.14 E-09	< 9.68 E-09
NNW Farm (BFMREED) 2nd Qtr 1987	< 2.0 E-07	1.79 \pm 0.2 E-09	< 5.0 E-10	< 1.05 E-08	< 1.31 E-08
WNW Farm (BFMCOBO) 2nd Qtr 1987	< 2.0 E-07	2.90 \pm 0.5 E-09	< 7.0 E-10	< 1.02 E-08	< 1.12 E-08
Control (BFMCTRL-S) 1st Half 1987	< 1.8 E-07	1.46 \pm 0.3 E-09	< 6.0 E-10	< 1.19 E-08	< 1.49 E-08
Control (BFMCTRL-N) 1st Half 1987	< 1.8 E-07	2.23 \pm 0.3 E-09	< 6.0 E-10	< 1.11 E-08	< 1.09 E-08
NNW Farm (BFMREED) 3rd Qtr 1987	< 3.0 E-07	2.29 \pm 0.4 E-09	< 5.0 E-10	< 9.53 E-09	< 1.16 E-08
WNW Farm (BFMCOBO) 3rd Qtr 1987	< 3.0 E-07	1.67 \pm 0.3 E-09	< 7.0 E-10	< 1.08 E-08	< 9.27 E-09
Control (BFMCTRL-S) 3rd Qtr 1987	< 3.0 E-07	2.05 \pm 0.3 E-09	< 5.0 E-10	< 6.47 E-09	< 8.44 E-09
Control (BFMCTRL-N) 3rd Qtr 1987	< 3.0 E-07	2.76 \pm 0.4 E-09	< 5.0 E-10	< 1.17 E-08	< 1.24 E-08
NNW Farm (BFMREED) 4th Qtr 1987	< 2.0 E-07	3.04 \pm 0.4 E-09	< 6.0 E-10	< 1.13 E-08	< 1.34 E-08
WNW Farm (BFMCOBO) 4th Qtr 1987	< 2.0 E-07	1.41 \pm 0.2 E-09	< 8.0 E-10	< 1.39 E-08	< 1.42 E-08
Control (BFMCTRL-S) 4th Qtr 1987	< 2.0 E-07	2.52 \pm 0.3 E-09	< 7.0 E-10	< 1.13 E-08	< 1.31 E-08
Control (BFMCTRL-N) 4th Qtr 1987	< 2.0 E-07	2.51 \pm 0.3 E-09	< 6.0 E-10	< 1.46 E-08	< 1.35 E-08
SE Farm (BFMWIDR) December 1987	< 2.0 E-07	2.09 \pm 0.3 E-09	< 7.0 E-10	< 1.14 E-08	< 1.31 E-08
SSW Farm (BFMHAUR) December 1987	< 2.0 E-07	3.10 \pm 0.4 E-09	< 6.0 E-10	< 9.34 E-09	< 1.04 E-08

TABLE C-3.2
RADIOACTIVITY CONCENTRATIONS IN MEAT - 1987
($\mu\text{Ci/g}$)

LOCATION	Sr-89	Sr-90	Cs-134	Cs-137
Deer Flesh - Near Site (BFDNEAR) 12/87	---	$2.73 \pm 0.4 \text{ E-09}$	$< 2.8 \text{ E-08}$	$6.28 \pm 2.7 \text{ E-08}$
Deer Skeleton - Near Site (BFDNEAR) 12/87	$< 1.7 \text{ E-06}$	$2.09 \pm 0.3 \text{ E-06}$	---	---
Deer Flesh - Background (BFDCTRL) 1/88	---	$2.33 \pm 0.5 \text{ E-09}$	$< 1.9 \text{ E-08}$	$< 2.5 \text{ E-08}$
Beef Flesh - Near Site (BFBNEAR) 6/87	---	---	$< 1.6 \text{ E-08}$	$4.53 \pm 1.5 \text{ E-08}$
Beef Flesh - Background (BFBCTRL) 6/87	---	---	$< 1.5 \text{ E-08}$	$2.37 \pm 1.3 \text{ E-08}$
Beef Flesh - Near Site (BFBNEAR) 10/87	---	---	$< 2.0 \text{ E-08}$	$< 2.5 \text{ E-08}$
Beef. Flesh - Background (BFCTRL) 9/87	---	---	$< 1.3 \text{ E-08}$	$1.31 \pm 1.2 \text{ E-08}$

TABLE C-3.3
RADIOACTIVITY CONCENTRATIONS IN FOOD CROPS - 1987
($\mu\text{Ci/g DRY}$)

LOCATION	Tritium ($\mu\text{Ci/mL}$)	Sr-90	K-40	Co-60	Cs-137
Corn - Near Site (BfvNEAR) 9/87	$< 1.5 \text{ E-07}$	$4.92 \pm 1.4 \text{ E-10}$	$3.18 \pm 0.3 \text{ E-06}$	$< 1.8 \text{ E-08}$	$< 1.4 \text{ E-08}$
Corn - Background (BfvCTRL) 9/87	$< 1.2 \text{ E-07}$	$9.26 \pm 1.6 \text{ E-10}$	$3.09 \pm 0.2 \text{ E-06}$	$< 1.3 \text{ E-08}$	$< 8.0 \text{ E-09}$
Apples - Near Site (BfvNEAR) 9/87	$< 2.0 \text{ E-07}$	$3.65 \pm 0.4 \text{ E-08}$	$7.42 \pm 0.5 \text{ E-06}$	$< 3.1 \text{ E-08}$	$< 2.4 \text{ E-08}$
Apples - Background (BfvCTRL) 9/87	$< 2.0 \text{ E-07}$	$3.72 \pm 0.4 \text{ E-08}$	$7.16 \pm 0.5 \text{ E-06}$	$< 2.2 \text{ E-08}$	$< 2.0 \text{ E-08}$
Hay - Near Site (BfvNEAR) 10/87	NA	$2.33 \pm 0.3 \text{ E-07}$	$1.09 \pm 0.1 \text{ E-05}$	$< 2.3 \text{ E-08}$	$1.83 \pm 1.6 \text{ E-08}$
Hay - Background (BfvCTRL) 9/87	NA	$2.48 \pm 0.3 \text{ E-08}$	$2.50 \pm 0.1 \text{ E-05}$	$< 1.6 \text{ E-08}$	$1.12 \pm 0.9 \text{ E-08}$

NA - Not Analyzed

TABLE C-3.4
 RADIOACTIVITY CONCENTRATIONS IN FISH FROM CATTARAUGUS CREEK - 1987
 ($\mu\text{Ci/g}$ - DRY)

	CATTARAUGUS CREEK (BFFCATC) - 2ND QUARTER 1987			CATTARAUGUS CREEK (BFFCATC) - 3RD QUARTER 1987			
	FLESH			FLESH			SKELETON
	Sr-90	Cs-134	Cs-137	Sr-90	Cs-134	Cs-137	Sr-90
MEDIAN	3.33 E-08	<1.93 E-07	<2.16 E-07	4.30 E-08	< 3.18 E-07	< 3.34 E-07	3.58 E-07
AVERAGE GEOMETRIC DEVIATION	2.14	1.53	1.49	1.64	1.39	1.51	1.47
MAXIMUM	9.73 \pm 2.1 E-08	<3.3 E-07	3.80 \pm 1.1 E-07	7.12 \pm 2.0 E-08	< 4.1 E-07	< 4.4 E-07	4.39 \pm 2.5 E-07
MINIMUM	1.15 \pm 0.6 E-08	<1.0 E-07	<1.4 E-07	1.60 \pm 1.2 E-08	< 2.0 E-07	< 1.7 E-07	1.18 \pm 0.6 E-07
	CATTARAUGUS CREEK (BFFCTRL) BACKGROUND 2ND QTR 1987			CATTARAUGUS CREEK (BFFCTRL) BACKGROUND - 3RD QTR 1987			
	FLESH			FLESH			
	Sr-90	Cs-134	Cs-137	Sr-90	Cs-134	Cs-137	
MEDIAN	9.30 E-09	<1.19 E-07	<1.20 E-07	2.13 E-08	< 2.06 E-07	< 2.15 E-07	
AVERAGE GEOMETRIC DEVIATION	1.62	1.29	1.44	1.32	1.24	1.26	
MAXIMUM	4.69 \pm 0.6 E-08	<2.4 E-07	<2.8 E-07	3.91 \pm 0.7 E-08	< 3.0 E-07	< 3.4 E-07	
MINIMUM	<7.0 E-09	<9.5 E-08	<8.7 E-08	1.60 \pm 0.9 E-08	< 1.6 E-07	< 1.5 E-07	
	CATTARAUGUS CREEK (BFFCATD) BELOW SPRINGVILLE DAM - 2ND QTR 1987			CATTARAUGUS CREEK (BFFCATD) BELOW SPRINGVILLE DAM 3RD QTR 1987			
	FLESH			FLESH			
	Sr-90	Cs-134	Cs-137	Sr-90	Cs-134	Cs-137	
MEDIAN	6.55 E-08	<1.57 E-07	<1.91 E-07	9.60 E-09	< 4.70 E-08	< 6.60 E-08	
AVERAGE GEOMETRIC DEVIATION	1.87	1.70	1.83	1.92	1.53	1.87	
MAXIMUM	3.28 \pm 0.5 E-07	<4.5 E-07	<4.8 E-07	7.15 \pm 1.7 E-08	< 2.4 E-07	< 2.5 E-07	
MINIMUM	6.94 \pm 4.1 E-09	<5.7 E-08	4.40 \pm 4.2 E-08	4.28 \pm 0.9 E-09	< 3.5 E-08	< 2.7 E-08	

APPENDIX C-4
SUMMARY OF DIRECT RADIATION MONITORING

TABLE C-4.1
SUMMARY OF TLD MEASUREMENTS - 1987
(Roentgen \pm 3SD)

Location*	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Location Average
1	0.017 \pm 0.002	0.024 \pm 0.006	0.022 \pm 0.004	0.022 \pm 0.005	0.021 \pm 0.004
2	0.016 \pm 0.003	0.024 \pm 0.004	0.021 \pm 0.002	0.020 \pm 0.004	0.020 \pm 0.003
3	0.016 \pm 0.003	0.023 \pm 0.004	0.020 \pm 0.003	0.020 \pm 0.002	0.020 \pm 0.003
4	0.016 \pm 0.001	0.022 \pm 0.003	0.021 \pm 0.004	0.021 \pm 0.005	0.020 \pm 0.003
5	0.017 \pm 0.003	0.024 \pm 0.006	0.023 \pm 0.003	0.023 \pm 0.004	0.022 \pm 0.004
6	0.016 \pm 0.002	0.022 \pm 0.003	0.020 \pm 0.002	0.020 \pm 0.002	0.020 \pm 0.002
7	0.015 \pm 0.002	0.026 \pm 0.006	0.019 \pm 0.003	0.021 \pm 0.003	0.020 \pm 0.004
8	0.016 \pm 0.001	0.022 \pm 0.004	0.021 \pm 0.002	0.021 \pm 0.002	0.020 \pm 0.002
9	0.016 \pm 0.002	0.022 \pm 0.002	0.020 \pm 0.006	0.019 \pm 0.005	0.019 \pm 0.004
10	0.016 \pm 0.002	0.023 \pm 0.005	0.021 \pm 0.002	0.023 \pm 0.005	0.021 \pm 0.004
11	0.018 \pm 0.003	0.026 \pm 0.007	0.024 \pm 0.005	0.024 \pm 0.006	0.023 \pm 0.005
12	0.014 \pm 0.003	0.023 \pm 0.004	0.020 \pm 0.001	0.021 \pm 0.003	0.020 \pm 0.003
13	0.019 \pm 0.003	0.024 \pm 0.002	0.023 \pm 0.003	0.024 \pm 0.004	0.023 \pm 0.003
14	0.018 \pm 0.002	0.025 \pm 0.004	0.023 \pm 0.005	0.023 \pm 0.003	0.023 \pm 0.004
15	0.018 \pm 0.002	0.023 \pm 0.006	0.022 \pm 0.002	0.022 \pm 0.003	0.021 \pm 0.003
16	0.018 \pm 0.002	0.023 \pm 0.004	0.022 \pm 0.003	0.023 \pm 0.003	0.022 \pm 0.003
17	0.017 \pm 0.004	0.023 \pm 0.005	0.022 \pm 0.002	0.025 \pm 0.002	0.022 \pm 0.003
18**	0.021 \pm 0.004	0.031 \pm 0.008	0.028 \pm 0.004	0.031 \pm 0.004	0.028 \pm 0.005
19**	0.019 \pm 0.004	0.025 \pm 0.006	0.026 \pm 0.005	0.026 \pm 0.003	0.024 \pm 0.005
20	0.016 \pm 0.002	0.023 \pm 0.005	0.022 \pm 0.003	0.022 \pm 0.003	0.021 \pm 0.003
21	0.016 \pm 0.002	0.021 \pm 0.004	0.020 \pm 0.004	0.020 \pm 0.003	0.019 \pm 0.003
22	0.016 \pm 0.004	0.022 \pm 0.003	0.021 \pm 0.004	0.022 \pm 0.004	0.020 \pm 0.004
23	0.016 \pm 0.003	0.021 \pm 0.004	0.020 \pm 0.003	0.021 \pm 0.005	0.020 \pm 0.004
24**	1.927 \pm 0.270	1.863 \pm 0.320	1.640 \pm 0.195	1.716 \pm 0.258	1.787 \pm 0.261
25	0.037 \pm 0.007	0.043 \pm 0.007	0.041 \pm 0.002	0.046 \pm 0.006	0.042 \pm 0.006
26	0.035 \pm 0.004	0.041 \pm 0.010	0.039 \pm 0.005	0.049 \pm 0.004	0.041 \pm 0.006
27	0.018 \pm 0.003	0.025 \pm 0.003	0.024 \pm 0.002	0.025 \pm 0.003	0.023 \pm 0.003
28	0.017 \pm 0.003	0.023 \pm 0.004	0.023 \pm 0.003	0.025 \pm 0.003	0.022 \pm 0.003
29	0.021 \pm 0.003	0.029 \pm 0.004	0.028 \pm 0.002	0.030 \pm 0.004	0.027 \pm 0.003
30	0.036 \pm 0.005	0.040 \pm 0.051	0.039 \pm 0.003	0.039 \pm 0.004	0.038 \pm 0.004
31	***	0.021 \pm 0.003	0.021 \pm 0.003	0.023 \pm 0.003	0.022 \pm 0.003
32	***	0.021 \pm 0.005	0.022 \pm 0.003	0.024 \pm 0.005	0.022 \pm 0.004
33	***	0.024 \pm 0.004	0.023 \pm 0.003	0.025 \pm 0.005	0.024 \pm 0.004
34	***	0.025 \pm 0.003	0.025 \pm 0.002	0.026 \pm 0.005	0.025 \pm 0.003
35	***	0.025 \pm 0.003	0.024 \pm 0.002	0.027 \pm 0.005	0.025 \pm 0.003
36	***	0.032 \pm 0.008	0.031 \pm 0.002	0.032 \pm 0.005	0.032 \pm 0.005
37	***	***	***	0.013 \pm 0.006	0.013 \pm 0.006
Quarterly Average**	0.019 \pm 0.003	0.025 \pm 0.005	0.024 \pm 0.003	0.025 \pm 0.004	0.023 \pm 0.004

* See Figures A-1 and A-2 for locations.

** TLDs 18, 19 and 24 are on-site at locations which are not accessible to the public. They are not part of the off-site monitoring program and are not included in the quarterly averages.

*** TLD packages not placed.