

APPENDIX C-3
SUMMARY OF BIOLOGICAL SAMPLE DATA

TABLE C-3.1
RADIOACTIVITY CONCENTRATIONS IN MILK - 1988
($\mu\text{Ci/mL}$)

LOCATION	H-3	Sr-90	I-129	Cs-134	Cs-137
NNW Farm (BFMREED) 1st Qtr 1988	<2.0 E-07	1.53 \pm 0.3 E-09	<3.0 E-10	<1.0 E-08	<1.1 E-08
WNW Farm (BFMCOBO) 1st Qtr 1988	<2.0 E-07	1.82 \pm 0.3 E-09	<3.0 E-10	<1.4 E-08	<1.4 E-08
Control (BFMCTLS) 1st Qtr 1988	<2.0 E-07	1.74 \pm 0.2 E-09	<3.0 E-10	<1.2 E-08	<1.3 E-08
Control (BFMCTLN) 1st Qtr 1988	<2.0 E-07	2.03 \pm 0.3 E-09	<3.0 E-10	<1.1 E-08	<1.0 E-08
NNW Farm (BFMREED) 2nd Qtr 1988	<3.0 E-07	2.48 \pm 0.3 E-09	<7.0 E-10	<1.3 E-08	<1.1 E-08
WNW Farm (BFMCOBO) 2nd Qtr 1988	<3.0 E-07	1.94 \pm 0.3 E-09	<5.0 E-10	<1.6 E-08	<1.5 E-08
Control (BFMCTLS) 2nd Qtr 1988	<3.0 E-07	1.39 \pm 0.2 E-09	<7.0 E-10	<1.5 E-08	<1.2 E-08
Control (BFMCTLN) 2nd Qtr 1988	<3.0 E-07	1.84 \pm 0.3 E-09	<6.0 E-10	<1.8 E-08	<1.5 E-08
NNW Farm (BFMREED) 3rd Qtr 1988	<3.5 E-07	4.18 \pm 0.3 E-09	<8.9 E-10	<8.7 E-09	<1.3 E-08
WNW Farm (BFMCOBO) 3rd Qtr 1988	<3.5 E-07	4.08 \pm 0.3 E-09	<8.9 E-10	<8.8 E-09	<8.9 E-09
Control (BFMCTLS) 3rd Qtr 1988	<3.5 E-07	2.39 \pm 0.2 E-09	<8.9 E-10	<7.4 E-09	<9.4 E-09
Control (BFMCTLN) 3rd Qtr 1988	<3.5 E-07	3.33 \pm 0.3 E-09	<8.9 E-10	<9.3 E-09	<9.6 E-09
NNW Farm (BFMREED) 4th Qtr 1988	<1.8 E-07	6.47 \pm 2.2 E-09	<8.2 E-10	<4.4 E-09	<4.7 E-09
WNW Farm (BFMCOBO) 4th Qtr 1988	<1.8 E-07	<5.5 E-09	<7.7 E-10	<5.6 E-09	<4.6 E-09
Control (BFMCTLS) 4th Qtr 1988	<1.8 E-07	3.41 \pm 0.6 E-09	<7.7 E-10	<5.5 E-09	<5.6 E-09
Control (BFMCTLN) 4th Qtr 1988	<1.8 E-07	<2.0 E-09	<4.0 E-09	<4.8 E-09	<4.9 E-09
SE Farm (BFMWIDR) December 1988	<1.8 E-07	<3.9 E-09	<7.7 E-10	<5.0 E-09	<6.0 E-09
SSW Farm (BFMHAUR) December 1988	<1.8 E-07	<2.0 E-09	<2.0 E-09	<5.9 E-09	<6.5 E-09

TABLE C-3.2
 RADIOACTIVITY CONCENTRATIONS IN MEAT - 1988
 ($\mu\text{Ci/g}$)

LOCATION	Percent Moisture	Sr-90	Cs-134	Cs-137
Deer Flesh - Near Site (BFDNEAR #1) 12/88	69.9	$5.60 \pm 1.5 \text{ E-09}$	$<2.1 \text{ E-08}$	$<2.9 \text{ E-08}$
Deer Flesh - Near Site (BFDNEAR #2) 12/88	66.4	$1.06 \pm 0.2 \text{ E-08}$	$<1.9 \text{ E-08}$	$4.76 \pm 1.9 \text{ E-08}$
Deer Flesh - Nearsite (BFDNEAR #3) 12/88	67.1	$3.52 \pm 1.3 \text{ E-09}$	$<2.0 \text{ E-08}$	$6.92 \pm 2.0 \text{ E-08}$
Deer Flesh - Background (BFDCTRL #1) 11/88	72.4	$2.67 \pm 1.1 \text{ E-09}$	$<1.9 \text{ E-08}$	$1.34 \pm 0.1 \text{ E-07}$
Deer Flesh - Background (BFDCTRL #2) 11/88	67.9	$7.45 \pm 1.6 \text{ E-09}$	$<1.7 \text{ E-08}$	$8.24 \pm 1.1 \text{ E-08}$
Deer Flesh - Background (BFDCTRL #3) 11/88	69.9	$<2.1 \text{ E-09}$	$<4.6 \text{ E-08}$	$1.11 \pm 0.5 \text{ E-07}$
Beef Flesh - Near Site (BFBNEAR) 6/88	75.0	$<3.7 \text{ E-09}$	$<2.6 \text{ E-08}$	$<1.4 \text{ E-08}$
Beef Flesh - Background (BFBCTRL) 6/88	74.6	$<3.5 \text{ E-09}$	$<1.9 \text{ E-08}$	$<1.6 \text{ E-08}$
Beef Flesh - Near Site (BFBNEAR) 11/88	68.9	$1.82 \pm 0.4 \text{ E-08}$	$<1.6 \text{ E-08}$	$<2.2 \text{ E-08}$
Beef Flesh - Background (BFBCTRL) 10/88	70.6	$<4.2 \text{ E-09}$	$<2.1 \text{ E-08}$	$<2.0 \text{ E-08}$

TABLE C-3.3

RADIOACTIVITY CONCENTRATIONS IN FOOD CROPS - 1988
($\mu\text{Ci/g DRY}$)

LOCATION	Percent Moisture	Tritium ($\mu\text{Ci/mL}$)	Sr-90	K-40	Co-60	Cs-137
Corn - Near Site (BFVNEAR) 8/88	59.1	$1.36 \pm 0.2 \text{ E-05}$	$<9.6 \text{ E-09}$	$5.93 \pm 0.8 \text{ E-06}$	$<2.9 \text{ E-08}$	$<2.2 \text{ E-08}$
Corn - Background (BFVCTRL) 8/88	77.9	$1.09 \pm 0.2 \text{ E-05}$	$<2.1 \text{ E-08}$	$1.49 \pm 0.2 \text{ E-05}$	$<5.3 \text{ E-08}$	$<3.6 \text{ E-08}$
Tomatoes - Near Site (BFVNEAR) 8/88	95.2	$2.73 \pm 0.5 \text{ E-06}$	$<3.4 \text{ E-08}$	$5.59 \pm 0.7 \text{ E-05}$	$<2.2 \text{ E-07}$	$<1.5 \text{ E-07}$
Tomatoes - Background (BFVCTRL) 8/88	94.8	$2.88 \pm 0.5 \text{ E-06}$	$3.40 \pm 1.8 \text{ E-08}$	$4.88 \pm 0.6 \text{ E-05}$	$<2.1 \text{ E-07}$	$<1.1 \text{ E-07}$
Apples - Near Site (BFVNEAR) 10/88	84.8	$6.93 \pm 1.0 \text{ E-06}$	$9.26 \pm 1.8 \text{ E-08}$	$9.30 \pm 2.3 \text{ E-06}$	$<1.3 \text{ E-07}$	$<1.1 \text{ E-07}$
Apples - Background (BFVCTRL) 10/88	86.8	$5.85 \pm 0.9 \text{ E-06}$	$<1.7 \text{ E-08}$	$7.60 \pm 2.2 \text{ E-06}$	$<1.7 \text{ E-07}$	$<1.3 \text{ E-07}$
Hay - Near Site (BFVNEAR) 12/88	43.4	NA	$1.04 \pm 0.2 \text{ E-07}$	$1.71 \pm 0.3 \text{ E-05}$	$<1.2 \text{ E-07}$	$<9.8 \text{ E-08}$
Hay - Background (BFVCTRL) 12/88	57.9	NA	$1.46 \pm 0.2 \text{ E-07}$	$2.65 \pm 0.4 \text{ E-05}$	$<1.5 \text{ E-07}$	$<1.0 \text{ E-07}$

NA - Not Analyzed

TABLE C-3.4
 RADIOACTIVITY CONCENTRATIONS IN FISH FROM CATTARAUGUS CREEK - 1988
 ($\mu\text{Ci/g}$ - DRY)

	CATTARAUGUS CREEK (BFFCATC) 2ND QUARTER 1988			CATTARAUGUS CREEK (BFFCATC) 3RD QUARTER 1988		
	FLESH			FLESH		
	Sr-90	Cs-134	Cs-137	Sr-90	Cs-134	Cs-137
MEDIAN	3.75 E-08	<3.30 E-07	<2.63 E-07	8.41 E-08	<1.80 E-07	<2.23 E-07
AVERAGE GEOMETRIC DEVIATION	1.42	1.79	1.65	1.34	1.28	1.38
MAXIMUM	5.55 E-08	<4.5 E-07	<3.4 E-07	1.29 E-07	<2.5 E-07	4.19 E-07
MINIMUM	<2.0 E-08	<8.9 E-08	<8.2 E-08	6.81 E-08	<1.4 E-07	<1.7 E-07
Average % Moisture	75.0			78.7		
	CATTARAUGUS CREEK (BFFCTRL) BACKGROUND 2ND QTR 1988			CATTARAUGUS CREEK (BFFCTRL) BACKGROUND 3RD QTR 1988		
	FLESH			FLESH		
	Sr-90	Cs-134	Cs-137	Sr-90	Cs-134	Cs-137
MEDIAN	<1.67 E-08	<4.10 E-07	<3.11 E-07	4.55 E-08	<6.80 E-08	<7.10 E-08
AVG GEOMETRIC DEVIATION	1.65	1.29	1.36	2.47	1.18	1.23
MAXIMUM	<3.0 E-08	<5.5 E-07	<4.1 E-07	9.00 E-08	<7.7 E-07	<7.9 E-08
MINIMUM	<1.0 E-08	<2.9 E-07	<2.1 E-07	<1.0 E-08	<4.8 E-08	<4.6 E-08
Average % Moisture	71.2			76.2		
	CATTARAUGUS CREEK (BFFCATD) BELOW SPRINGVILLE DAM 2ND QTR 1988			CATTARAUGUS CREEK (BFFCATD) BELOW SPRINGVILLE DAM 3RD QTR 1988		
	FLESH			FLESH		
	Sr-90	Cs-134	Cs-137	Sr-90	Cs-134	Cs-137
MEDIAN	8.05 E-08	<1.28 E-07	<1.29 E-07	2.50 E-08	<5.90 E-08	<6.55 E-08
AVG GEOMETRIC DEVIATION	2.83	1.39	1.49	3.30	1.25	1.33
MAXIMUM	3.01 E-07	<4.0 E-07	<3.2 E-07	8.79 E-08	<7.6 E-08	<8.0 E-08
MINIMUM	<2.0 E-08	<1.1 E-07	8.64 E-08	<6.7 E-09	<2.7 E-08	<4.0 E-08
Average % Moisture	75.5			73.4		

APPENDIX C-4
SUMMARY OF DIRECT RADIATION MONITORING

TABLE C-4-1
SUMMARY OF QUARTERLY AVERAGES OF TLD MEASUREMENTS FOR 1988
(Roentgen/quarter)

Location*	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Location Average
1	0.017 ± 0.002	0.023 ± 0.005	0.024 ± 0.003	0.023 ± 0.003	0.022 ± 0.003
2	0.017 ± 0.002	0.021 ± 0.001	0.023 ± 0.005	0.022 ± 0.003	0.021 ± 0.003
3	0.017 ± 0.002	0.020 ± 0.004	0.023 ± 0.003	0.021 ± 0.003	0.020 ± 0.003
4	0.019 ± 0.003	0.021 ± 0.002	0.023 ± 0.002	0.021 ± 0.007	0.021 ± 0.004
5	0.018 ± 0.003	0.022 ± 0.004	0.024 ± 0.005	0.025 ± 0.004	0.022 ± 0.004
6	0.018 ± 0.004	0.020 ± 0.003	0.024 ± 0.005	0.022 ± 0.003	0.021 ± 0.004
7	0.016 ± 0.003	0.020 ± 0.002	0.022 ± 0.002	0.024 ± 0.005	0.020 ± 0.003
8	0.017 ± 0.001	0.019 ± 0.003	0.023 ± 0.002	0.023 ± 0.004	0.020 ± 0.002
9	0.017 ± 0.003	0.020 ± 0.003	0.021 ± 0.002	0.021 ± 0.005	0.020 ± 0.003
10	0.018 ± 0.004	0.021 ± 0.005	0.023 ± 0.004	0.022 ± 0.005	0.021 ± 0.004
11	0.019 ± 0.005	0.023 ± 0.003	0.024 ± 0.003	0.026 ± 0.008	0.023 ± 0.005
12	0.017 ± 0.001	0.020 ± 0.004	0.022 ± 0.004	0.023 ± 0.004	0.020 ± 0.003
13	0.019 ± 0.005	0.022 ± 0.004	0.027 ± 0.004	0.025 ± 0.004	0.023 ± 0.004
14	0.019 ± 0.003	0.022 ± 0.004	0.025 ± 0.004	0.025 ± 0.005	0.023 ± 0.004
15	0.019 ± 0.002	0.021 ± 0.004	0.023 ± 0.003	0.023 ± 0.005	0.021 ± 0.004
16	0.020 ± 0.005	0.022 ± 0.005	0.024 ± 0.004	0.023 ± 0.004	0.023 ± 0.004
17	0.021 ± 0.003	0.028 ± 0.014	0.025 ± 0.003	0.025 ± 0.006	0.025 ± 0.006
18**	0.027 ± 0.003	0.029 ± 0.004	0.034 ± 0.005	0.038 ± 0.010	0.032 ± 0.005
19**	0.022 ± 0.003	0.023 ± 0.005	0.027 ± 0.003	0.028 ± 0.004	0.025 ± 0.004
20	0.019 ± 0.001	0.021 ± 0.004	0.022 ± 0.003	0.022 ± 0.007	0.021 ± 0.004
21	0.018 ± 0.006	0.020 ± 0.004	0.022 ± 0.003	0.021 ± 0.005	0.020 ± 0.004
22	0.018 ± 0.003	0.021 ± 0.002	0.022 ± 0.003	0.021 ± 0.003	0.020 ± 0.003
23	0.017 ± 0.004	0.020 ± 0.003	0.021 ± 0.003	0.020 ± 0.004	0.019 ± 0.003
24**	1.968 ± 0.306	1.627 ± 0.308	1.584 ± 0.194	1.634 ± 0.274	1.703 ± 0.270
25	0.038 ± 0.010	0.036 ± 0.007	0.039 ± 0.003	0.038 ± 0.008	0.038 ± 0.007
26	0.035 ± 0.007	0.039 ± 0.005	0.044 ± 0.020	0.037 ± 0.008	0.039 ± 0.010
27	0.020 ± 0.002	0.024 ± 0.004	0.027 ± 0.006	0.026 ± 0.005	0.024 ± 0.004
28	0.018 ± 0.003	0.024 ± 0.006	0.024 ± 0.003	0.024 ± 0.009	0.022 ± 0.005
29	0.024 ± 0.003	0.027 ± 0.006	0.031 ± 0.002	0.027 ± 0.009	0.027 ± 0.005
30	***	0.037 ± 0.007	0.037 ± 0.007	0.035 ± 0.010	0.036 ± 0.008
31	0.018 ± 0.005	0.022 ± 0.004	0.023 ± 0.002	0.023 ± 0.003	0.021 ± 0.004
32	0.018 ± 0.004	0.023 ± 0.002	0.027 ± 0.003	0.027 ± 0.005	0.024 ± 0.003
33	0.019 ± 0.004	0.025 ± 0.005	0.027 ± 0.005	0.030 ± 0.004	0.025 ± 0.005
34	0.021 ± 0.004	0.026 ± 0.008	0.034 ± 0.006	0.044 ± 0.006	0.031 ± 0.006
35	0.021 ± 0.004	0.029 ± 0.004	0.033 ± 0.005	0.040 ± 0.005	0.031 ± 0.005
36	0.027 ± 0.004	***	0.052 ± 0.011	0.055 ± 0.015	0.045 ± 0.010
37	0.018 ± 0.004	0.019 ± 0.004	0.021 ± 0.004	0.020 ± 0.004	0.019 ± 0.004
38**	0.050 ± 0.009	0.053 ± 0.008	0.052 ± 0.012	0.049 ± 0.009	0.051 ± 0.009
39**	0.015 ± 0.008	0.097 ± 0.008	0.100 ± 0.015	0.099 ± 0.018	0.100 ± 0.012
40**	0.251 ± 0.030	0.233 ± 0.037	0.217 ± 0.021	0.239 ± 0.045	0.235 ± 0.033
Quarterly Average**	0.020 ± 0.004	0.024 ± 0.004	0.027 ± 0.004	0.027 ± 0.006	0.024 ± 0.004

* Locations shown on Figures A-3 and A-6.

** TLDs 18, 19, 24, 38, 39 and 40 are not included in the quarterly averages.

*** TLD Package Missing