

Appendix F

Summary of Biological Data



Milk and Meat Samples are Collected from Local Bovine Herds

The following tables contain a bolding convention devised to help the reader, when viewing the data, to quickly see the range of detectable measurements within a data series. A data series is a set of chemical or radionuclide measurements (e.g., gross alpha, gross beta, tritium) from a single location or from similar locations. Note that some tables contain data that should not be technically evaluated under this convention.

Key to bolding convention:

Results for each constituent constitute a single data series. If a radiological result is larger than the uncertainty term, the measurement is considered positive. Otherwise, a result is considered non-detectable.

If all results in a data series are positive, the lowest and highest values are bolded.

If a data series contains some positive results, the highest value is bolded.

If all values in a data series are nondetectable, no values are bolded.

Table F-1
2001 Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Milk

Location	H-3	K-40	Sr-90	I-129	Cs-137
BFMCOBO					
(WNW Farm)					
<i>1st Quarter</i>	0.00±1.01E-07	1.35±0.10E-06	2.00±0.77E-09	1.20±4.17E-10	2.07±2.07E-09
<i>2nd Quarter</i>	-2.87±9.05E-08	1.44±0.16E-06	2.96±0.74E-09	-2.97±4.02E-10	0.00±1.55E-09
<i>3rd Quarter</i>	0.00±1.08E-07	8.92±2.16E-07	3.77±4.24E-10	-1.14±3.40E-10	-1.29±4.19E-09
<i>4th Quarter*</i>					
BFMCTLN					
(Background)					
<i>1st Quarter</i>	1.16±1.07E-07	1.32±0.19E-06	6.52±5.33E-10	-1.40±3.42E-10	2.50±3.82E-09
<i>2nd Quarter</i>	2.86±9.29E-08	1.46±0.17E-06	7.87±5.15E-10	-0.18±4.43E-10	1.31±0.98E-09
<i>3rd Quarter</i>	1.38±1.09E-07	1.59±0.25E-06	1.04±0.48E-09	-1.21±3.80E-10	4.33±5.60E-09
<i>4th Quarter</i>	1.09±0.87E-07	1.51±0.19E-06	2.61±0.75E-09	4.83±4.08E-10	1.19±1.12E-09
BFMCTLS					
(Background)					
<i>1st Quarter</i>	0.29±1.03E-07	1.16±0.17E-06	1.60±0.64E-09	-0.08±2.68E-10	3.74±3.50E-09
<i>2nd Quarter</i>	0.00±9.12E-08	1.52±0.19E-06	8.60±4.87E-10	2.72±2.18E-10	0.63±1.14E-09
<i>3rd Quarter</i>	-2.73±9.93E-08	1.44±0.25E-06	5.84±5.39E-10	-2.35±3.45E-10	5.62±4.29E-09
<i>4th Quarter</i>	2.69±8.21E-08	1.60±0.19E-06	6.96±7.12E-10	0.00±4.08E-10	3.14±2.39E-09
BFMREED					
(NNW Farm)					
<i>1st Quarter</i>	-2.89±9.83E-08	1.10±0.11E-06	7.32±4.69E-10	1.04±3.44E-10	0.45±2.95E-09
<i>2nd Quarter</i>	8.57±9.56E-08	1.47±0.06E-06	1.15±0.50E-09	3.10±3.94E-10	1.04±1.07E-09
<i>3rd Quarter</i>	-2.74±9.98E-08	1.42±0.22E-06	8.25±4.89E-10	0.00±4.11E-10	2.95±5.57E-09
<i>4th Quarter</i>	8.14±8.55E-08	1.45±0.17E-06	-0.20±7.63E-10	4.21±4.07E-10	-1.42±1.81E-09
BFMSCHT					
(S Farm)					
<i>Annual</i>	0.27±1.18E-07	1.37±0.19E-06	2.27±0.57E-09	4.79±5.91E-10	0.40±2.43E-09
BFMWIDR					
(SE Farm)					
<i>Annual</i>	-1.88±1.07E-07	1.29±0.19E-06	1.35±0.57E-09	-1.12±4.75E-10	-0.08±2.23E-09

* Not available, sampling discontinued at this location.

Note: Bolding convention applied to these data. See page F-2.

Table F-2
2001 Radioactivity Concentrations ($\mu\text{Ci/g}$ - dry) in Meat

2001 Radioactivity Concentrations in Beef					
Location	% Moisture	H-3 ($\mu\text{Ci/mL}$)	K-40	Sr-90	Cs-137
Beef Flesh Background (BFBCTRL 05/01)	76.7	-0.76 \pm 1.16E-07	1.51 \pm 0.18E-05	0.78 \pm 2.03E-09	3.95 \pm 2.88E-08
Beef Flesh Background (BFBCTRL 12/01)	68.7	5.40 \pm 8.90E-08	9.74 \pm 1.18E-06	1.26 \pm 1.04E-09	9.38 \pm 8.60E-09
Beef Flesh Near-Site (BFBNEAR 03/01)	61.4	1.01 \pm 1.21E-07	6.32 \pm 0.88E-06	6.57 \pm 8.19E-10	-0.43 \pm 1.62E-08
Beef Flesh Near-Site (BFBNEAR 12/01)	67.9	2.70 \pm 8.77E-08	9.16 \pm 1.09E-06	1.25 \pm 1.13E-09	2.28 \pm 1.02E-08
2001 Radioactivity Concentrations in Venison					
Location	% Moisture	H-3 ($\mu\text{Ci/mL}$)	K-40	Sr-90	Cs-137
Deer Flesh Background (BFDCTRL 11/01)	72.1	0.00 \pm 8.63E-08	1.10\pm0.13E-05	1.99 \pm 1.08E-09	1.58 \pm 0.55E-07
Deer Flesh Background (BFDCTRL 11/01)	72.4	2.69 \pm 8.76E-08	1.13 \pm 0.13E-05	2.08\pm1.23E-09	2.66\pm0.44E-07
Deer Flesh Background (BFDCTRL 12/01)	74.9	0.00 \pm 8.68E-08	1.18\pm0.14E-05	-1.03 \pm 0.80E-09	1.30 \pm 1.58E-08
Deer Flesh Near-Site (BFDNEAR 10/01)	75.5	0.00 \pm 8.42E-08	1.06\pm0.14E-05	3.66\pm1.20E-09	2.64 \pm 2.07E-08
Deer Flesh Near-Site (BFDNEAR 11/01)	73.2	5.42 \pm 8.67E-08	1.28 \pm 0.18E-05	0.48 \pm 1.02E-09	3.28 \pm 3.57E-08
Deer Flesh Near-Site (BFDNEAR 11/01)	73.9	8.09 \pm 8.76E-08	1.33\pm0.17E-05	1.47 \pm 0.97E-09	3.72\pm2.82E-08

Note: Bolding convention applied to venison data. See page F-2.

Table F-3
2001 Radioactivity Concentrations ($\mu\text{Ci/g}$ - dry) in Food Crops

Location	% Moisture	H-3 ($\mu\text{Ci/mL}$)	K-40	Co-60	Sr-90	Cs-137
CORN						
Background						
(BFVCTRC)	78.6	-0.43 \pm 1.16E-07	1.17 \pm 0.20E-05	-1.79 \pm 3.96E-08	1.42 \pm 0.53E-08	1.76 \pm 3.55E-08
Near-Site						
(BFVNEAC)	74.8	0.32 \pm 1.18E-07	1.22 \pm 0.17E-05	0.00 \pm 3.83E-08	3.13 \pm 1.71E-09	0.35 \pm 2.44E-08
BEANS						
Background						
(BFVCTRB)	90.9	0.46 \pm 1.17E-07	3.34 \pm 0.40E-05	1.91 \pm 5.38E-08	2.43 \pm 0.22E-07	-0.70 \pm 4.77E-08
Near-Site						
(BFVNEAB)	89.5	0.68 \pm 1.18E-07	2.26 \pm 0.30E-05	0.91 \pm 5.81E-08	1.24 \pm 0.12E-07	2.95 \pm 5.02E-08
APPLES						
Background						
(BFVCTRA)	86.7	-1.61 \pm 1.05E-07	8.30 \pm 1.14E-06	-1.32 \pm 2.60E-08	6.42 \pm 1.94E-09	-0.04 \pm 1.94E-08
Near-Site						
(BFVNEAAF)	84.8	-0.26 \pm 1.08E-07	7.88 \pm 1.20E-06	0.13 \pm 1.82E-08	7.72 \pm 1.37E-09	-1.21 \pm 2.19E-08
HAY						
Background						
(BFHCTLS)	NA	NA	2.22 \pm 0.26E-05	-0.74 \pm 3.45E-08	1.86 \pm 0.10E-07	0.19 \pm 3.16E-08
Near-Site						
(BFHNEAR)	NA	NA	1.53 \pm 0.27E-05	1.11 \pm 6.11E-08	5.73 \pm 1.52E-08	5.06 \pm 6.23E-08

NA - Not applicable.

Note: Bolding convention not applicable to these data.

Table F-4
2001 Radioactivity Concentrations ($\mu\text{Ci/g}$ - dry) in Fish Flesh
From Cattaraugus Creek

Cattaraugus Creek above the Springville Dam (BFFCATC)

1st Half 2001

Species	% Moisture	Sr-90	Cs-137
Hog-nosed Sucker	77.0	5.85±0.50E-08	3.97±4.26E-08
Hog-nosed Sucker	77.0	7.09±0.57E-08	1.54±1.06E-07
Hog-nosed Sucker	77.4	7.00±0.65E-08	0.00±6.42E-08
Hog-nosed Sucker	77.3	1.20±0.11E-07	-1.06±6.68E-08
Hog-nosed Sucker	77.7	8.75±0.68E-08	0.34±4.62E-08
Brown Trout	74.7	2.18±0.32E-08	4.51±3.90E-08
Hog-nosed Sucker	77.3	9.08±0.63E-08	1.70±4.93E-08
Hog-nosed Sucker	76.4	7.65±0.93E-08	1.52±4.70E-08
Hog-nosed Sucker	77.5	1.46±0.12E-07	0.00±1.01E-07
Hog-nosed Sucker	78.8	9.08±0.97E-08	0.40±7.94E-08
Average % Moisture	77.1		
Median		8.20E-08	<5.68E-08
Maximum		1.46E-07	1.54E-07
Minimum		2.18E-08	<4.26E-08

2nd Half 2001

Species	% Moisture	Sr-90	Cs-137
Hog-nosed Sucker	83.2	2.37±0.55E-08	0.00±1.04E-07
Hog-nosed Sucker	78.9	1.33±5.14E-09	0.70±1.31E-07
Hog-nosed Sucker	77.6	1.97±0.56E-08	0.05±1.14E-07
Hog-nosed Sucker	78.0	8.97±5.44E-09	5.85±6.44E-08
Hog-nosed Sucker	79.5	2.32±0.65E-08	1.26±0.68E-07
Hog-nosed Sucker	82.1	2.21±0.96E-08	1.91±0.78E-07
Brook Trout	78.6	5.97±6.02E-09	9.19±5.30E-08
Hog-nosed Sucker	80.2	2.16±0.68E-08	9.32±7.42E-08
Hog-nosed Sucker	80.3	2.53±0.42E-08	0.49±4.43E-08
Hog-nosed Sucker	80.4	1.68±0.81E-08	1.88±0.91E-07
Average % Moisture	79.9		
Median		2.06E-08	1.09E-07
Maximum		2.53E-08	1.91E-07
Minimum		<5.14E-09	<4.43E-08

Note: Bolding convention applied to these data. See page F-2.

Table F-4 (continued)
2001 Radioactivity Concentrations ($\mu\text{Ci/g}$ - dry) in Fish Flesh
From Cattaraugus Creek

Cattaraugus Creek below the Springville Dam (BFFCATD)

Annual 2001

Species	% Moisture	Sr-90	Cs-137
Steelhead Trout	72.7	9.46±1.71E-09	2.59±1.67E-08
Steelhead Trout	74.4	0.45±1.21E-09	3.15±1.81E-08
Steelhead Trout	75.2	-1.93±9.10E-10	2.20±2.54E-08
Steelhead Trout	76.2	2.59±8.47E-10	0.00±2.45E-08
Steelhead Trout	75.2	-0.30±1.40E-09	2.75±2.14E-08
Steelhead Trout	78.4	1.45±7.07E-10	3.36±1.79E-08
Steelhead Trout	72.6	3.07±1.09E-09	2.84±1.78E-08
Steelhead Trout	70.0	7.26±1.49E-09	0.07±2.15E-08
Steelhead Trout	75.7	4.87±1.19E-09	2.51±1.62E-08
Steelhead Trout	73.6	3.45±0.98E-09	2.10±1.64E-08
Average % Moisture	74.4		
Median		2.24E-09	2.56E-08
Maximum		9.46E-09	3.36E-08
Minimum		<7.07E-10	2.10E-08

Note: Bolding convention applied to these data. See page F-2.

Table F-4 (concluded)
2001 Radioactivity Concentrations ($\mu\text{Ci/g}$ - dry) in Fish Flesh
From Cattaraugus Creek

Cattaraugus Creek Background (BFFCTRL)

1st Half 2001

Species	% Moisture	Sr-90	Cs-137
Hog-nosed Sucker	75.2	9.75±2.95E-09	0.39±5.97E-08
White Sucker	79.1	1.10±0.25E-08	3.74±4.75E-08
Brown Trout	76.3	1.70±4.35E-09	-2.08±4.49E-08
White Sucker	77.6	1.47±0.42E-08	0.00±1.92E-07
Brown Trout	75.0	5.89±7.11E-09	2.16±9.69E-08
White Sucker	77.9	9.70±5.48E-09	0.31±3.84E-08
White Sucker	75.1	9.72±3.70E-09	1.03±1.56E-07
Hog-nosed Sucker	77.6	2.27±0.50E-08	-2.21±4.56E-08
Brown Trout	70.6	2.45±4.15E-09	1.24±0.61E-07
White Sucker	76.4	1.73±0.38E-08	3.63±5.51E-08
Average % Moisture	76.1		
Median		9.74E-09	<5.74E-08
Maximum		2.27E-08	1.24E-07
Minimum		<4.15E-09	<3.84E-08

2nd Half 2001

Species	% Moisture	Sr-90	Cs-137
Hog-nosed Sucker	79.3	8.21±3.15E-09	6.87±7.36E-08
Hog-nosed Sucker	79.0	8.12±2.05E-09	0.00±1.96E-07
Hog-nosed Sucker	79.0	6.27±3.64E-09	1.11±4.60E-08
Hog-nosed Sucker	78.6	5.87±2.27E-09	0.14±4.82E-08
Brown Trout	79.4	-0.06±2.75E-09	1.00±4.84E-08
White Sucker	78.9	5.31±1.77E-09	0.00±5.01E-08
Hog-nosed Sucker	77.9	3.85±2.24E-09	2.36±5.48E-08
White Sucker	79.4	3.96±0.33E-08	0.38±1.16E-07
Brown Trout	77.1	8.24±3.52E-09	8.43±7.24E-08
White Sucker	81.0	5.69±2.97E-09	2.05±3.44E-08
Average % Moisture	79.0		
Median		6.07E-09	<5.24E-08
Maximum		3.96E-08	8.43E-08
Minimum		<2.75E-09	<3.44E-08

Note: Bolding convention applied to these data. See page F-2.