

# *Appendix C - 3*

*Summary of Biological Data*



*Milk and Meat Samples Are Collected from Local Bovine Herds*

**Table C - 3.1**

**1995 Radioactivity Concentrations in Milk ( $\mu\text{Ci/mL}$ )**

| <b>Location</b>   | <b>H-3</b><br>( $\mu\text{Ci/mL}$ ) | <b>Sr-90</b>  | <b>I-129</b>   | <b>Cs-134</b>  | <b>Cs-137</b>  | <b>K-40</b>   |
|-------------------|-------------------------------------|---------------|----------------|----------------|----------------|---------------|
| <b>BFMCOBO</b>    |                                     |               |                |                |                |               |
| <b>(WNW Farm)</b> |                                     |               |                |                |                |               |
| <i>1st Qtr</i>    | 0.56±1.31E-07                       | 4.19±0.62E-09 | 0.59±3.15E-10  | -2.29±1.17E-09 | 0.59±1.14E-09  | 1.42±0.24E-07 |
| <i>2nd Qtr</i>    | 1.95±6.86E-08                       | 1.73±0.39E-09 | -1.90±4.30E-10 | 0.69±1.60E-09  | 1.43±1.93E-09  | 9.13±0.71E-07 |
| <i>3rd Qtr</i>    | 2.96±0.81E-07                       | 8.53±4.59E-10 | 6.44±4.23E-10  | -1.52±1.28E-09 | 6.40±2.85E-09  | 9.02±0.57E-07 |
| <i>4th Qtr</i>    | -0.16±1.01E-07                      | 2.05±0.38E-09 | 2.73±4.64E-10  | 0.02±2.04E-09  | 0.35±1.83E-09  | 1.21±0.10E-06 |
| <b>BFMCTLN</b>    |                                     |               |                |                |                |               |
| <b>(Control)</b>  |                                     |               |                |                |                |               |
| <i>1st Qtr</i>    | -4.01±8.81E-08                      | 1.51±0.56E-09 | 5.96±3.60E-10  | -0.68±1.15E-09 | -0.45±1.10E-09 | 1.51±0.05E-06 |
| <i>2nd Qtr</i>    | 8.85±6.98E-08                       | 2.96±0.45E-09 | 3.33±4.98E-10  | 1.04±1.70E-09  | 0.86±1.77E-09  | 1.39±0.09E-06 |
| <i>3rd Qtr</i>    | 0.77±1.03E-07                       | 9.74±2.90E-10 | 3.29±4.00E-10  | -0.88±1.45E-09 | 0.01±1.30E-09  | 1.16±0.06E-06 |
| <i>4th Qtr</i>    | -6.52±9.82E-08                      | 1.14±0.38E-09 | 1.56±3.28E-10  | -0.36±1.84E-09 | -1.48±2.17E-09 | 1.41±0.10E-06 |
| <b>BFMCTLS</b>    |                                     |               |                |                |                |               |
| <b>(Control)</b>  |                                     |               |                |                |                |               |
| <i>1st Qtr</i>    | -9.83±8.07E-08                      | 1.47±0.34E-09 | 4.59±4.29E-10  | 3.55±9.74E-10  | 0.76±2.57E-09  | 1.45±0.06E-06 |
| <i>2nd Qtr</i>    | 4.53±7.06E-08                       | 1.17±0.36E-09 | 1.11±4.16E-10  | 1.78±2.02E-09  | 1.42±1.78E-09  | 1.32±0.08E-06 |
| <i>3rd Qtr</i>    | 2.38±1.09E-07                       | 8.71±2.31E-10 | 1.81±2.38E-10  | 0.22±1.25E-09  | 0.54±1.36E-09  | 1.33±0.15E-06 |
| <i>4th Qtr</i>    | -5.31±9.96E-08                      | 1.66±0.33E-09 | 1.42±2.31E-10  | -0.38±1.43E-09 | 0.23±1.35E-09  | 1.45±0.07E-06 |
| <b>BFMREED</b>    |                                     |               |                |                |                |               |
| <b>(NNW Farm)</b> |                                     |               |                |                |                |               |
| <i>1st Qtr</i>    | 1.77±1.41E-07                       | 7.33±4.87E-10 | 7.80±3.63E-10  | 5.61±4.90E-09  | 1.49±2.28E-09  | 1.43±0.11E-06 |
| <i>2nd Qtr</i>    | 3.17±6.82E-08                       | 1.78±0.40E-09 | 3.48±5.16E-10  | 0.28±1.49E-09  | 1.28±1.83E-09  | 1.40±0.09E-06 |
| <i>3rd Qtr</i>    | 1.92±1.08E-07                       | 1.54±0.50E-09 | 4.80±5.52E-10  | -0.75±1.38E-09 | 0.47±1.38E-09  | 1.44±0.07E-06 |
| <i>4th Qtr</i>    | -0.64±1.01E-07                      | 2.11±0.41E-09 | 1.79±3.18E-10  | -0.05±2.06E-09 | 0.96±2.24E-09  | 1.28±0.16E-06 |
| <b>BFMSCHT</b>    |                                     |               |                |                |                |               |
| <b>(S Farm)</b>   |                                     |               |                |                |                |               |
| <i>Annual</i>     | -0.38±1.00E-07                      | 2.37±0.36E-09 | 0.00±3.58E-10  | -1.64±2.28E-09 | 1.81±1.93E-09  | 1.44±0.11E-06 |
| <b>BFMWIDR</b>    |                                     |               |                |                |                |               |
| <b>(SE Farm)</b>  |                                     |               |                |                |                |               |
| <i>Annual</i>     | -0.33±1.00E-07                      | 1.37±0.37E-09 | 1.28±3.92E-10  | 0.52±1.79E-09  | 1.70±2.33E-09  | 1.44±0.11E-06 |

## Table C - 3.2

### 1995 Radioactivity Concentrations in Meat

#### 1995 Radioactivity Concentrations in Beef

(μCi/g - Dry)

| Location                                 | % Moisture | H-3<br>(μCi/mL) | Sr-90          | Cs-134         | Cs-137        | K-40          |
|--|------------|-----------------|----------------|----------------|---------------|---------------|
| Beef Flesh Background<br>(BFBCTRL 05/95) | 77.00      | 0.63±1.17E-07   | 1.93±0.42E-08  | -0.32±1.60E-08 | 3.00±1.93E-08 | 1.58±0.06E-05 |
| Beef Flesh Background<br>(BFBCTRL 10/95) | 74.00      | -6.70±9.81E-08  | 2.87±1.09E-09  | 0.27±2.26E-08  | 4.71±4.06E-08 | 1.29±0.09E-05 |
| Beef Flesh Near-site<br>(BFBNEAR 06/95)  | 75.00      | 0.33±1.15E-07   | -1.29±2.83E-09 | -0.38±1.64E-08 | 1.75±1.78E-08 | 1.69±0.08E-05 |
| Beef Flesh Near-site<br>(BFBNEAR 12/95)  | 71.00      | -1.61±9.86E-08  | 4.24±1.88E-09  | -1.44±1.98E-08 | 1.76±2.02E-08 | 1.00±0.09E-05 |

#### 1995 Radioactivity Concentrations in Venison

(μCi/g - Dry)

| Location                             | % Moisture | H-3<br>(μCi/mL) | Sr-90         | Cs-134         | Cs-137        | K-40          |
|--------------------------------------|------------|-----------------|---------------|----------------|---------------|---------------|
| Deer Flesh Background<br>(BFDCTRL 1) | 70.00      | -0.66±1.01E-07  | 2.10±1.14E-09 | -0.09±1.08E-08 | 8.76±2.31E-08 | 9.12±0.64E-06 |
| Deer Flesh Background<br>(BFDCTRL 2) | 77.00      | -0.41±1.03E-07  | 0.06±1.07E-09 | -0.09±1.24E-08 | 1.23±0.36E-07 | 1.24±0.08E-05 |
| Deer Flesh Background<br>(BFDCTRL 3) | 72.00      | -0.43±1.04E-07  | 2.40±1.15E-09 | -0.47±1.43E-08 | 2.39±2.04E-08 | 9.73±0.84E-06 |
| Deer Flesh Near-site<br>(NYSDEER 1)  | 72.00      | 0.33±1.04E-07   | 6.20±4.74E-09 | -0.36±2.36E-08 | 4.26±3.61E-08 | 1.49±0.10E-05 |
| Deer Flesh Near-site<br>(NYSDEER 2)  | 70.00      | 0.00±1.07E-07   | 4.52±2.59E-09 | -0.10±2.44E-08 | 1.13±2.23E-08 | 9.00±0.84E-06 |
| Deer Flesh Near-site<br>(BFDNEAR 3)  | 72.00      | -0.68±1.05E-07  | 0.12±1.03E-09 | -1.10±1.56E-08 | 4.59±3.30E-08 | 9.93±0.88E-06 |

**Table C - 3.3**

**1995 Radioactivity Concentrations in Food Crops ( $\mu\text{Ci/g Dry}$ )**

| Location                       | % Moisture | H-3<br>( $\mu\text{Ci/mL}$ ) | Sr-90               | K-40                | Co-60                | Cs-137               |
|--------------------------------|------------|------------------------------|---------------------|---------------------|----------------------|----------------------|
| <b>CORN</b>                    |            |                              |                     |                     |                      |                      |
| <b>Background</b><br>(BFVCTRC) | 86.00      | 4.03 $\pm$ 9.69E-08          | 8.45 $\pm$ 2.01E-09 | 1.93 $\pm$ 0.10E-05 | 0.60 $\pm$ 2.64E-08  | 2.91 $\pm$ 2.70E-08  |
| <b>Near-site</b><br>(BFVNEAC)  | 79.00      | 8.27 $\pm$ 1.19E-07          | 8.72 $\pm$ 2.71E-09 | 1.67 $\pm$ 0.07E-05 | -1.46 $\pm$ 2.10E-08 | 1.34 $\pm$ 1.90E-08  |
| <b>BEANS</b>                   |            |                              |                     |                     |                      |                      |
| <b>Background</b><br>(BFVCTRB) | 93.00      | 2.00 $\pm$ 1.00E-07          | 1.25 $\pm$ 0.12E-07 | 3.21 $\pm$ 0.12E-05 | 1.30 $\pm$ 3.33E-08  | 1.32 $\pm$ 2.67E-08  |
| <b>Near-site</b><br>(BFVNEAB)  | 93.00      | 1.40 $\pm$ 1.01E-07          | 1.06 $\pm$ 0.73E-07 | 3.66 $\pm$ 0.12E-05 | 3.81 $\pm$ 3.24E-08  | -0.94 $\pm$ 2.70E-08 |
| <b>APPLES</b>                  |            |                              |                     |                     |                      |                      |
| <b>Background</b><br>(BFVCTRA) | 86.70      | 1.65 $\pm$ 1.01E-07          | 2.02 $\pm$ 0.34E-08 | 9.92 $\pm$ 0.52E-06 | 0.20 $\pm$ 1.24E-08  | 0.06 $\pm$ 1.24E-08  |
| <b>Near-site</b><br>(BFVNEAA)  | 86.90      | 7.81 $\pm$ 9.82E-08          | 8.03 $\pm$ 0.71E-08 | 1.02 $\pm$ 0.05E-05 | 1.92 $\pm$ 1.45E-08  | 0.84 $\pm$ 1.14E-08  |
| <b>HAY</b>                     |            |                              |                     |                     |                      |                      |
| <b>Background</b><br>(BFHCTLN) | NA         | NA                           | 1.90 $\pm$ 0.10E-07 | 2.01 $\pm$ 0.11E-05 | -0.05 $\pm$ 2.95E-08 | 1.38 $\pm$ 2.68E-08  |
| <b>Near-site</b><br>(BFHNEAR)  | NA         | NA                           | 5.75 $\pm$ 0.62E-08 | 2.55 $\pm$ 0.10E-05 | -1.61 $\pm$ 3.03E-08 | 3.54 $\pm$ 3.30E-08  |

NA - Not available.

**Table C - 3.4**

**1995 Radioactivity Concentrations in Fish Flesh from Cattaraugus Creek**

**Cattaraugus Creek above the Springville Dam (BFFCATC)**  
( $\mu\text{Ci/g} - \text{dry}$ )

**1st half 1995**

| <b>Species</b>     | <b>% moisture</b> | <b>Sr-90</b>   | <b>Cs-134</b>  | <b>Cs-137</b> |
|--------------------|-------------------|----------------|----------------|---------------|
| Hog-nosed Sucker   | 79.0              | 1.54±0.26E-08  | 0.87±9.67E-08  | 3.88±8.19E-08 |
| Hog-nosed Sucker   | 81.0              | 6.53±2.21E-09  | -0.76±1.25E-07 | 0.93±1.08E-07 |
| Hog-nosed Sucker   | 80.0              | -1.55±1.67E-09 | -6.15±9.75E-08 | 0.33±1.04E-07 |
| Hog-nosed Sucker   | 76.0              | 9.51±1.63E-09  | 1.61±7.33E-08  | 3.50±2.09E-07 |
| Hog-nosed Sucker   | 78.0              | 1.15±0.28E-08  | 8.00±7.41E-08  | 5.41±9.23E-08 |
| Hog-nosed Sucker   | 79.0              | 6.27±1.19E-09  | 0.09±1.03E-07  | 1.17±0.96E-07 |
| Hog-nosed Sucker   | 79.0              | 8.71±2.52E-09  | -1.76±9.72E-08 | 4.60±9.33E-08 |
| Brown Trout        | 79.0              | -4.62±1.91E-09 | -0.43±1.13E-07 | 6.95±6.14E-08 |
| Brown Trout        | 78.0              | -3.09±2.27E-09 | -0.21±1.18E-07 | 2.47±9.50E-08 |
| Brown Trout        | 80.0              | -1.75±2.52E-09 | -0.56±1.19E-07 | 2.34±1.70E-07 |
| Average % Moisture | 78.9              |                |                |               |
| Median             |                   | 6.40E-09       | < 1.00E-07     | 9.95E-08      |
| Maximum            |                   | 1.54E-08       | 8.00E-08       | 3.50E-07      |
| Minimum            |                   | < 1.67E-09     | < 7.33E-08     | 6.95E-08      |

**2nd half 1995**

| <b>Species</b>     | <b>% moisture</b> | <b>Sr-90</b>  | <b>Cs-134</b>  | <b>Cs-137</b>  |
|--------------------|-------------------|---------------|----------------|----------------|
| Hog-nosed Sucker   | 80.0              | 4.07±0.76E-08 | 0.14±2.71E-08  | 0.40±2.33E-08  |
| Hog-nosed Sucker   | 80.0              | 1.01±0.14E-07 | 0.36±2.50E-08  | 2.12±2.53E-08  |
| Hog-nosed Sucker   | 80.0              | 9.12±1.45E-09 | 0.45±2.33E-08  | 3.22±5.19E-08  |
| Hog-nosed Sucker   | 79.0              | 4.55±0.67E-08 | 0.51±2.07E-08  | 1.42±2.20E-08  |
| Hog-nosed Sucker   | 80.0              | 5.92±0.82E-08 | 0.85±2.01E-08  | 0.05±1.92E-08  |
| Hog-nosed Sucker   | 79.0              | 2.31±0.84E-08 | -0.25±2.42E-08 | 0.89±2.20E-08  |
| Hog-nosed Sucker   | 80.0              | 3.19±1.14E-08 | -0.76±2.17E-08 | 1.34±1.94E-08  |
| Hog-nosed Sucker   | 79.0              | 1.81±0.68E-08 | 1.65±1.88E-08  | -0.88±1.88E-08 |
| Hog-nosed Sucker   | 79.0              | 2.11±0.49E-08 | -0.73±1.97E-08 | 0.99±1.65E-08  |
| Rainbow Trout      | 78.0              | 4.00±1.03E-08 | 0.69±1.52E-08  | 0.96±1.46E-08  |
| Average % Moisture | 79.4              |               |                |                |
| Median             |                   | 3.60E-08      | < 2.12E-08     | < 2.07E-08     |
| Maximum            |                   | 1.01E-07      | < 2.71E-08     | < 5.19E-08     |
| Minimum            |                   | 9.12E-09      | < 1.52E-08     | < 1.46E-08     |

*Table C - 3.4 (continued)*

*1995 Radioactivity Concentrations in Fish Flesh from Cattaraugus Creek*

**Cattaraugus Creek Background (BFFCTRL)**  
( $\mu\text{Ci/g}$  - dry)

**1st half 1995**

| Species            | % moisture | Sr-90          | Cs-134         | Cs-137         |
|--------------------|------------|----------------|----------------|----------------|
| Hog-nosed Sucker   | 79.0       | 1.62±1.57E-09  | 2.52±9.62E-08  | 1.24±1.00E-07  |
| Hog-nosed Sucker   | 79.0       | 8.51±9.78E-10  | 0.05±1.08E-07  | 2.37±8.95E-08  |
| Hog-nosed Sucker   | 81.0       | -2.61±5.28E-09 | -0.52±1.10E-07 | 4.46±8.79E-08  |
| Hog-nosed Sucker   | 77.0       | 5.79±1.57E-09  | 2.50±8.48E-08  | 2.22±6.87E-08  |
| Hog-nosed Sucker   | 78.0       | -1.67±1.89E-09 | -0.56±1.22E-07 | -4.19±9.59E-08 |
| Hog-nosed Sucker   | 80.0       | 1.13±0.87E-09  | 0.50±1.05E-07  | -0.44±1.02E-07 |
| Brown Trout        | 76.0       | -1.75±3.52E-09 | -0.30±1.14E-07 | 0.75±9.08E-08  |
| Brown Trout        | 77.0       | -3.34±1.54E-09 | -1.86±8.69E-08 | 4.05±8.91E-08  |
| Brown Trout        | 77.0       | -3.19±2.64E-09 | -0.29±1.18E-07 | -0.17±1.08E-07 |
| Brown Trout        | 73.0       | -9.22±8.79E-10 | -6.15±8.07E-08 | -1.36±6.81E-08 |
| Average % moisture | 77.7       |                |                |                |
| Median             |            | 1.76E-09       | <1.07E-07      | <9.02E-08      |
| Maximum            |            | 5.79E-09       | <1.22E-07      | 1.24E-07       |
| Minimum            |            | <8.79E-10      | <8.07E-08      | <6.81E-08      |

**2nd half 1995**

| Species            | % moisture | Sr-90         | Cs-134         | Cs-137         |
|--------------------|------------|---------------|----------------|----------------|
| Hog-nosed Sucker   | 80.0       | 8.72±5.41E-09 | -0.37±2.08E-08 | 0.00±1.77E-08  |
| Hog-nosed Sucker   | 80.0       | 1.53±0.45E-08 | 0.39±1.44E-08  | -0.96±1.27E-08 |
| Hog-nosed Sucker   | 78.0       | 1.22±0.43E-08 | 2.30±2.49E-08  | 0.52±1.81E-08  |
| Hog-nosed Sucker   | 79.0       | 1.53±0.41E-08 | -0.62±1.95E-08 | -0.76±2.29E-08 |
| Hog-nosed Sucker   | 80.0       | 1.71±0.57E-08 | -0.16±2.13E-08 | 0.68±2.00E-08  |
| White Sucker       | 81.0       | 1.94±0.74E-08 | -0.74±1.90E-08 | 0.05±1.63E-08  |
| Brown Trout        | 79.0       | 5.04±5.69E-09 | 0.16±1.95E-08  | 0.85±1.95E-08  |
| Brown Trout        | 78.0       | 1.53±9.32E-09 | 0.24±1.95E-08  | -0.16±1.91E-08 |
| Brown Trout        | 81.0       | 1.18±0.44E-08 | 0.04±2.28E-08  | 0.31±2.05E-08  |
| Brown Trout        | 75.0       | 1.10±0.32E-08 | 0.23±2.02E-08  | 0.33±1.95E-08  |
| Average % moisture | 79.1       |               |                |                |
| Median             |            | 1.20E-08      | <1.99E-08      | <1.93E-08      |
| Maximum            |            | 1.94E-08      | <2.49E-08      | <2.29E-08      |
| Minimum            |            | <5.69E-09     | <1.44E-08      | <1.27E-08      |

*Table C - 3.4 (concluded)*

*1995 Radioactivity Concentrations in Fish Flesh from Cattaraugus Creek*

Cattaraugus Creek below the Springville Dam (BFFCATD)

( $\mu\text{Ci/g} - \text{dry}$ )

Annual

| Species            | % Moisture | Sr-90          | Cs-134         | Cs-137         |
|--------------------|------------|----------------|----------------|----------------|
| Steelhead          | 66.0       | 4.93±1.23E-09  | -0.40±1.36E-08 | 2.22±1.28E-08  |
| Steelhead          | 70.0       | -1.25±1.06E-09 | -0.92±1.73E-08 | 1.31±1.89E-08  |
| Steelhead          | 73.0       | 1.54±1.13E-09  | -0.76±1.57E-08 | 0.94±1.80E-08  |
| Steelhead          | 74.0       | -5.98±0.90E-09 | -1.55±2.24E-08 | 0.36±2.29E-08  |
| Steelhead          | 73.0       | 1.97±1.39E-09  | -0.28±1.95E-08 | 2.12±1.98E-08  |
| Steelhead          | 61.0       | 5.26±1.86E-09  | -0.71±1.93E-08 | 1.06±2.06E-08  |
| Steelhead          | 75.0       | 2.25±1.17E-09  | -0.27±1.79E-08 | 2.81±3.11E-08  |
| Steelhead          | 74.0       | 9.52±3.62E-09  | 2.23±2.02E-08  | -0.05±1.88E-08 |
| Steelhead          | 75.0       | 3.05±2.04E-09  | -0.93±2.36E-08 | -0.76±2.14E-08 |
| Steelhead          | 76.0       | 4.57±1.86E-09  | -0.07±1.86E-08 | 1.54±2.06E-08  |
| Average % moisture | 71.7       |                |                |                |
| Median             |            | 2.65E-09       | <1.90E-08      | <2.09E-08      |
| Maximum            |            | 9.52E-09       | 2.23E-08       | 2.22E-08       |
| Minimum            |            | <9.00E-10      | <1.36E-08      | <1.80E-08      |