

RG 374 ~ 71 copies  
Report by the Commander JTF 3 on Completion  
March 1948 - Nov 1953. APPENDIX "B" of Opn G.H.  
PROGRAM 2.0 - BIOMEDICAL

Interservice Agency  
AFSWP Test Div Opns

1. GENERAL

The fundamental objective of this program was to obtain information which can be used in planning effective medical care for the victims of atomic warfare, and for the victims of industrial accidents in nuclear energy plants. 403059

2. FACILITIES

The physical facilities of the biomedical program on PARRY ISLAND, ENIWETOK ATOLL, consisted of personnel and administrative buildings, animal quarters and clinical laboratories, a total of 51 buildings.

3. ANIMALS **BEST AVAILABLE COPY**

Careful care and attention was given to the breeding of swine, dogs and mice in the tropical climate to insure the development of pure strains suitable for test purposes. At test time, animals to be exposed were healthy and remarkably consistent in their response to injury. The extent of participation of the animals in the four tests is shown in the following table:

| Shot   | Projects | Number of<br>Mice* | Dogs* | Swine | Stations** |
|--------|----------|--------------------|-------|-------|------------|
| DOG    | 4        | 1,170              | 0     | 0     | 16         |
| EASY   | 16       | 11,390             | 164   | 178   | 173        |
| GEORGE | 8        | 1,230              | 0     | 22    | 60         |
| ITEM   | 1        | 0                  | 16    | 0     | 8          |
| TOTALS |          | 13,790             | 180   | 200   | 257        |

\* Includes necessary control animals.

\*\* Actual number of structures in which material was placed on the shot islands.

4. EXPOSURE EQUIPMENT

Five types of exposure equipment were designed and procured for the experimentation; cylinders, hemispheres, thermal shelters, high dose stand types and foxholes. All of the units were satisfactory except for one foxhole (400 yards from ITEM ground zero) which partially caved in. There was no general failure of any equipment, although some of the closest phantoms were damaged by flying debris and some of the electrical circuits failed because of excessive humidity on GEORGE shot. The cylinder and hemisphere units were very satisfactory and provided a unique basic design for exposure equipment to be used in tests of this sort.

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5. MEDIAN LETHAL DOSAGE OF NUCLEAR RADIATION

a. The median lethal dosage (MLD) of nuclear radiation was obtained successfully for mice, dogs and swine. The MLD is defined as that dosage at which 50% mortality is to be expected. On EASY shot, 4,720 mice were exposed in 29 cylinder stations at distances ranging from 1,000 to 1,750 yards and all were recovered alive on E day, 6 hours after the detonation. The mortality rate over a period of 28 days was determined and a smooth curve relating dosage to mortality was obtained. The MLD occurred at the station which was 1,416 yards from ground zero.

b. On EASY shot, 19 swine were placed in each of nine stations at distances ranging from 1,300 to 1,750 yards. The mortality rate over a period of 30 days was determined. On the 30th day after the shot there were two swine living from the station at 1,650 yards and eight living from the station at 1,750 yards. The MLD, therefore, occurred at some distance between 1,650 yards and 1,750 yards from ground zero.

c. On EASY shot, 10 dogs were placed in each of nine stations at the same distance as the swine. The mortality rate was determined over a 30 day period. On E plus 30 days there were 2 dogs living from the station at 1,620 yards, 5 living from the station at 1,650 yards and 9 living from the station at 1,750 yards from ground zero. The MLD, therefore, occurred at about 1,650 yards.

d. The best data were those for mice, from which a smooth dosage mortality curve can be drawn. The observed MLD based on the theoretical gamma radiation yield for the EASY weapon was lower by a factor of approximately 0.7 than the MLD of mice of the same strain exposed to supervoltage X-ray. The MLD for dogs based on the theoretical gamma radiation was approximately the same as that obtained with supervoltage X-ray. When the MLD was based on measurement of film packs placed within the containers in which the dogs were exposed, a somewhat lower value was obtained. The MLD for swine, based on the theoretical gamma radiation, was conspicuously lower than the value obtained with supervoltage X-ray. Tentatively, this discrepancy is attributed to the hot, humid environment, which was tolerated poorly by the swine. It appears that for future field tests, dogs are more satisfactory than swine for the determination of MLD and for the study of therapy on the MLD. Results obtained from the radiation depth dosage (discussed later) offered some explanation for the discrepancies noted in determining the median lethal dosages of the animals.

6. THERMAL RADIATION INJURY

a. On EASY shot, 46 swine and 16 dogs were anesthetized and placed in six

stations ranging from 1,325 to 5,600 yards from ground zero. Of these, 4 died as a result of the anesthesia. Satisfactory burns were obtained for study and biopsy on the animals placed in the five nearest stations.

b. On GEORGE shot, 22 swine were anesthetized and placed in two stations at 3,460 and 4,780 yards from ground zero. Of these, 10 died as a result of anesthesia and inclement weather. The circuits operating the mechanism for the study of time dependency failed because of moisture. The burns that were obtained were satisfactory for gross and microscopic study and for the demonstration of spectral dependency.

c. The equipment used in the burn study functioned satisfactorily; it was shown that the atomic bomb flash burn is caused principally by visible light, less so by infrared, and least of all by ultraviolet. The effort to estimate the time dependency of the burning was less successful. It seems quite certain that no burning occurs during the first maximum of the thermal emission. With the data obtained, it appears that all the burn is inflicted during the first portion of the second maximum and that burning ceases at about 0.3 to 0.5 seconds after the blast. Since this time interval coincides with the peak of the second maximum and since decrease in illumination does not occur until somewhat later, there is uncertainty regarding the significance of the cutoff. Considerable analysis of other phenomena that occur simultaneously is required before the time data can be accepted. Good kodachrome photographs of the burns and excellent biopsy material were obtained, which should aid in the precise clinical definition of this type of flash burn.

#### 7. BIOLOGICAL DOSIMETRY

a. The principal system of biological dosimetry depends upon the measurement of the percent change in the weight of the thymus and spleen of mice on the 5th day after irradiation. Comparison is made with special controls subjected to identical treatment except for the radiation. The effect of total nuclear radiation was studied in hemisphere stations with aluminum domes; the effect of total neutron radiation in hemisphere stations with lead domes; and the effect of fast neutrons, in hemisphere stations with lead cadmium domes. For DOG shot, 480 mice were exposed; for EASY shot, 720; and for GEORGE shot, 360. All mice were recovered alive. A comparable number of special control mice were placed in the hemispheres as a part of the dry run for each shot. The mouse thymus-spleen system worked very well with the expected yield. A consistent difference was observed between the film pack dose estimate and the mouse dose estimate, with the estimate from the mouse system always

lower.

b. Flowering Tradescantia plants were exposed to DOG, EASY and GEORGE shots at distances where the predicted radiation intensity was sufficiently low to produce chromosomal aberrations which could be analyzed. Tradescantia were also placed in drone aircraft for each of the three shots to measure the integrated dose of radiation during the cloud pass. The estimates of dose based on the study of chromosomes agreed well with the preliminary reports of the calibrated film.

c. The Tradescantia system was successful and the results obtained were consistent and agreed well with the measurements made by the mouse thymus-spleen system. The closest agreement between the dose estimates based on Tradescantia and those based on calibrated film was obtained in the drone aircraft experiments where the dose rate was lowest.

8. NUCLEAR RADIATION DEPTH DOSAGE STUDIES

a. Depth dose estimations were made to investigate the quality of the nuclear radiation. The specification of the quality of a beam of ionizing radiation of whatever source is a major problem in clinical radiology. The conventional unit is the half value layer (HVL), and in the case of X-ray therapy the conventional technique involves the use of phantoms constructed from material of unit density. The ability to specify the quality of the radiation from a nuclear weapon is intimately related to the problem of the experimental production of radiation injury, since it is possible that energy dependency and dose distribution may be important limiting factors in determining the type of injury that results.

b. Spherical lucite phantoms were displayed on EASY and GEORGE shots. In each case the nearest group of phantoms was lost due to flying debris. The ionization chambers and film packs were recovered from all the others and were in good condition for study.

c. Swine phantoms which resembled the shape and bulk of the torso of the swine, or a man, were exposed on EASY and GEORGE shots. All were recovered and the film packs contained in them are being processed.

d. The data have not been analyzed from the phantoms that contained calibrated film. In those that contained ionization chambers, it was found that the HVL using lucite (density slightly greater than unity) exceeded 20 centimeters. This finding indicates a very energetic composite radiation, the mean effective energy of which was well in excess of 1.0 Mev. It was mentioned above that the biological estimates of dose at a given distance were consistently lower than that given by

calibrated film, or theory, by a factor of 0.7. That is to say, the relative biological efficiency of nuclear radiation was greater than unity when compared to supervoltage X-ray. These considerations indicate the need for further study of the energy dependence of biological effects caused by ionizing radiations with energies greater than 1.0 Mev.

#### 9. BLAST INJURY

On "ITEM" shot, sixteen dogs were placed in 8 foxholes, 6 X 3 X 4 feet deep at distances ranging from 400 to 1,500 yards from ground zero. Radiation dosimeters and pressure gauges were also installed. The hole at 400 yards collapsed, burying the occupants. Live animals were recovered from all others. Severe radiation injury was sustained by all animals except those at 1,250 and 1,500 yards. Blast injury to the lungs and brain which might have been fatal ultimately was observed in animals placed at 600 and 800 yards.

#### 10. CLINICAL STUDIES

a. Clinical studies of the characteristics and the time trend of radiation injury were performed. In the case of swine, such studies consisted of serially killing all of the group exposed to the same supralethal dose of gamma radiation. These animals were killed at intervals of hours and days during the first two weeks after the blast to determine the sequence and the extent of the pathological changes that occurred. In the case of the mice, 2,400 survivors of the dosage mortality study were returned to the Oak Ridge National Laboratory for life time study to observe the effects of nuclear radiation on longevity, the incidence of cancer and the occurrence of cataracts.

b. The clinical studies were successful and excellent Kodachrome photographs were obtained of every stage and type of radiation injury. The most significant findings (on the basis of gross examination alone since the histological specimens are still being studied) was the early evidence of injury to the intestinal mucous membrane. This early lesion disappeared after a few hours, but within several days another more severe involvement occurred. The gross appearance of these lesions suggested a vascular injury rather than damage to the epithelium alone. This observation is quite valuable and should become the basis for extensive experimental work in the future. Taken as a whole, the gross pathological findings indicated the essential similarity of radiation injury in man and large animals regardless of whether the source is a nuclear explosion or exposure of the whole body to supervoltage X-ray. Bacteriological studies failed to disclose bacteremia except as a terminal finding in dogs and swine. In spite of this finding, it appeared that

septicemia was the cause of death in many animals. The hematological studies displayed the typical time trend of the leukopenia and the lymphopenia and further demonstrated the fundamental similarity of radiation injury due to exposure of the whole body to nuclear radiation, or to supervoltage X-ray.

APPENDIX A  
TABLE 10 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MUSCLE  
OF MISCELLANEOUS FISH TAKEN FROM THE COLUMBIA RIVER - 1963

Units of pc/g

| <u>Date</u>               | <u>Specie</u> | <u>Total Beta</u> | <u>P<sup>32</sup></u> | <u>Co<sup>60</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Co<sup>58</sup></u> | <u>Cs<sup>137</sup></u> |
|---------------------------|---------------|-------------------|-----------------------|------------------------|-----------------------|------------------------|------------------------|-------------------------|
| Reporting Limits          |               |                   | 2                     | 0.7                    | 1                     | 5                      | 0.7                    | 0.7                     |
| <u>McNary (continued)</u> |               |                   |                       |                        |                       |                        |                        |                         |
| 11-19                     | Squawfish     | 33                | 20                    | -                      | 3                     | 20                     | -                      | -                       |
| 11-19                     | Squawfish     | 30                | 25                    | -                      | 5                     | 10                     | -                      | -                       |
| 11-19                     | Squawfish     | 41                | 27                    | -                      | 6                     | 20                     | -                      | -                       |
| 11-19                     | Squawfish     | 39                | 32                    | -                      | 4                     | 10                     | -                      | -                       |
| 11-29                     | Sturgeon      | 72                | 61                    | -                      | 3                     | 10                     | -                      | -                       |
| 11-29                     | Sturgeon      | 41                | 32                    | -                      | 3                     | 10                     | -                      | -                       |
| 11-29                     | Sturgeon      | 120               | 110                   | -                      | -                     | 20                     | -                      | -                       |
| 12-27                     | Sucker        | 80                | 93                    | -                      | 3                     | 20                     | -                      | -                       |
| 12-27                     | Sucker        | 71                | 73                    | -                      | 3                     | 20                     | -                      | -                       |
| 12-27                     | Sucker        | 110               | 130                   | -                      | 3                     | 20                     | -                      | -                       |
| 12-27                     | Sucker        | 290               | 300                   | -                      | 3                     | 30                     | -                      | -                       |
| 12-27                     | Sucker        | 92                | 93                    | -                      | 4                     | 30                     | -                      | -                       |
| 12-27                     | Sucker        | 71                | 69                    | -                      | 3                     | 30                     | -                      | -                       |
| 12-27                     | Sturgeon      | 11                | 8                     | -                      | 4                     | 6                      | -                      | -                       |
| 12-27                     | Sturgeon      | 20                | 7                     | -                      | -                     | 10                     | -                      | -                       |

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

APPENDIX A  
TABLE 11

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>           | <u>Specie</u> | <u>Beta</u><br>50 | <u>P<sup>32</sup></u><br>50 |
|-----------------------|---------------|-------------------|-----------------------------|
| <u>Benton City</u>    |               |                   |                             |
| 10-13                 | Mallard       | -                 | -                           |
| 10-13                 | Teal          | -                 | -                           |
| 10-13                 | Shoveler      | -                 | -                           |
| 10-13                 | Widgeon       | -                 | -                           |
| <u>Chandler</u>       |               |                   |                             |
| 11-17                 | Mallard       | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | Teal          | -                 | < 53                        |
| 11-17                 | Teal          | -                 | < 55                        |
| 11-17                 | Widgeon       | -                 | -                           |
| <u>Columbia River</u> |               |                   |                             |
| 11-17                 | Mallard       | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | 160               | 140                         |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | -                 | -                           |
| 11-17                 | "             | 300               | 260                         |
| 11-17                 | "             | 59                | -                           |
| 11-17                 | Golden Eye    | 530               | 550                         |
| 11-17                 | Mallard       | 51                | -                           |
| <u>Connell</u>        |               |                   |                             |
| 12-29                 | Canada Goose  | -                 | -                           |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>             | <u>Specie</u>           | <u>Beta</u> | <u>p<sup>32</sup></u> |
|-------------------------|-------------------------|-------------|-----------------------|
| <u>Gibbon</u>           | <u>Reporting Limits</u> | <u>50</u>   | <u>50</u>             |
| 10-13                   | Teal                    | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | Widgeon                 | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | Mallard                 | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| <u>Mesa</u>             |                         |             |                       |
| 10-13                   | Mallard                 | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | 260         | 250                   |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | 61          | -                     |
| 10-13                   | "                       | 84          | 74                    |
| 10-13                   | "                       | -           | -                     |
| 10-13                   | "                       | 180         | 180                   |
| 10-13                   | "                       | 57          | -                     |
| <u>North of Ringold</u> |                         |             |                       |
| 11-28                   | Mallard                 | -           | -                     |
| 11-28                   | "                       | -           | -                     |
| 11-28                   | "                       | -           | -                     |
| 11-28                   | "                       | -           | -                     |
| 11-28                   | "                       | -           | -                     |
| 11-28                   | "                       | -           | -                     |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                         | <u>Specie</u>           | <u>Beta</u> | <u>P<sup>32</sup></u> |
|-------------------------------------|-------------------------|-------------|-----------------------|
|                                     | <u>Reporting Limits</u> | <u>50</u>   | <u>50</u>             |
| <u>North of Ringold (continued)</u> |                         |             |                       |
| 11-28                               | Mallard                 | -           | -                     |
| 11-28                               | "                       | 61          | -                     |
| 11-28                               | "                       | -           | -                     |
| 11-28                               | "                       | -           | -                     |
| 11-28                               | "                       | 55          | -                     |
| 11-28                               | "                       | 57          | -                     |
| 11-28                               | "                       | -           | -                     |
| 11-28                               | "                       | -           | -                     |
| 11-28                               | "                       | -           | -                     |
| 11-28                               | "                       | -           | -                     |
| Othello                             |                         |             |                       |
| 11-9                                | Pintail                 | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | Widgeon                 | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | Mallard                 | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-9                                | "                       | -           | -                     |
| 11-16                               | Mallard                 | -           | -                     |
| 11-16                               | "                       | -           | -                     |
| 11-16                               | "                       | -           | -                     |
| 11-16                               | "                       | -           | -                     |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                | <u>Specie</u>    | <u>Beta</u> | <u>P<sup>32</sup></u> |
|----------------------------|------------------|-------------|-----------------------|
|                            | Reporting Limits | 50          | 50                    |
| <u>Othello (continued)</u> |                  |             |                       |
| 11-16                      | Mallard          | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | -           | -                     |
| 11-16                      | "                | 62          | -                     |
| 11-26                      | Widgeon          | 52          | -                     |
| 11-24                      | Mallard          | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | 80          | 87                    |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | 120         | 80                    |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | 90          | 92                    |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | 140         | 170                   |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 11-24                      | "                | -           | -                     |
| 12-1                       | Mallard          | -           | -                     |
| 12-1                       | "                | -           | -                     |
| 12-1                       | "                | -           | -                     |
| 12-1                       | "                | -           | -                     |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                | <u>Specie</u>           | <u>Beta</u> | <u>P<sup>32</sup></u> |
|----------------------------|-------------------------|-------------|-----------------------|
|                            | <u>Reporting Limits</u> | <u>50</u>   | <u>50</u>             |
| <u>Othello (continued)</u> |                         |             |                       |
| 12-1                       | Mallard                 | -           | -                     |
| 12-1                       | "                       | -           | -                     |
| 12-1                       | "                       | -           | -                     |
| 12-1                       | "                       | -           | -                     |
| 12-1                       | "                       | -           | -                     |
| 12-1                       | "                       | -           | -                     |
| 12-8                       | Mallard                 | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-8                       | "                       | -           | -                     |
| 12-15                      | Mallard                 | -           | -                     |
| 12-15                      | "                       | 140         | 110                   |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | 230         | 250                   |
| 12-15                      | "                       | 59          | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | 69          | 56                    |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | 60          | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | -           | -                     |
| 12-15                      | "                       | 95          | 77                    |
| 12-15                      | "                       | -           | -                     |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                | <u>Specie</u>           | <u>Beta</u><br>50 | <u>P<sup>32</sup></u><br>50 |
|----------------------------|-------------------------|-------------------|-----------------------------|
|                            | <u>Reporting Limits</u> |                   |                             |
| <u>Othello (continued)</u> |                         |                   |                             |
| 12-15                      | Mallard                 | -                 | -                           |
| 12-15                      | "                       | -                 | -                           |
| 12-15                      | "                       | -                 | -                           |
| 12-15                      | "                       | -                 | -                           |
| 12-15                      | "                       | -                 | -                           |
| 12-15                      | "                       | -                 | -                           |
| 12-22                      | Mallard                 | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | 160               | 150                         |
| 12-22                      | "                       | 310               | 290                         |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | 50                | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | -                 | -                           |
| 12-22                      | "                       | 84                | 65                          |
| 12-22                      | "                       | -                 | -                           |

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

APPENDIX A  
TABLE II (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                | <u>Specie</u>           | <u>Beta</u> | <u>p<sup>32</sup></u> |
|----------------------------|-------------------------|-------------|-----------------------|
|                            | <u>Reporting Limits</u> | <u>50</u>   | <u>50</u>             |
| <u>Othello (continued)</u> |                         |             |                       |
| 12-22                      | Mallard                 | -           | -                     |
| 12-22                      | "                       | -           | -                     |
| 12-22                      | "                       | -           | -                     |
| 12-22                      | "                       | -           | -                     |
| 12-22                      | "                       | -           | -                     |
| 12-22                      | "                       | -           | -                     |
| 12-22                      | "                       | -           | -                     |
| <u>Prosser</u>             |                         |             |                       |
| 11-30                      | Mallard                 | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | "                       | -           | -                     |
| 11-30                      | Widgeon                 | -           | -                     |
| 12-12                      | Mallard                 | -           | -                     |
| 12-12                      | "                       | -           | -                     |
| 12-12                      | "                       | -           | -                     |
| 12-12                      | "                       | -           | -                     |
| 12-12                      | "                       | -           | -                     |
| 12-12                      | "                       | -           | -                     |
| <u>Richland</u>            |                         |             |                       |
| 12-17                      | Mallard                 | -           | -                     |
| 12-17                      | "                       | -           | -                     |
| 12-17                      | "                       | -           | -                     |
| 12-17                      | "                       | -           | -                     |
| 12-17                      | "                       | -           | -                     |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                 | <u>Specie</u>           | <u>Beta</u> | <u>P<sup>32</sup></u> |
|-----------------------------|-------------------------|-------------|-----------------------|
|                             | <u>Reporting Limits</u> | <u>50</u>   | <u>50</u>             |
| <u>Richland (continued)</u> |                         |             |                       |
| 12-17                       | Mallard                 | 54          | -                     |
| 12-17                       | "                       | -           | -                     |
| 12-17                       | "                       | -           | -                     |
| 12-17                       | "                       | -           | -                     |
| 12-20                       | Mallard                 | 170         | 150                   |

Scootney Reservoir

|       |         |   |   |
|-------|---------|---|---|
| 10-13 | Mallard | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | Widgeon | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | Pintail | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |
| 10-13 | "       | - | - |

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

APPENDIX A  
TABLE 11 (Continued)

CONCENTRATIONS OF BETA EMITTERS  
IN WATERFOWL CONTRIBUTED BY HUNTERS - 1963  
Units of pc/g

| <u>Date</u>                  | <u>Specie</u>    | <u>Beta</u> | <u>p<sup>32</sup></u> |
|------------------------------|------------------|-------------|-----------------------|
|                              | Reporting Limits | 50          | 50                    |
| <u>Scootney Reservoir</u>    |                  |             |                       |
| 10-13                        | Pintail          | -           | -                     |
| 10-13                        | "                | -           | -                     |
| 10-13                        | "                | -           | -                     |
| 10-13                        | "                | -           | -                     |
| 10-13                        | "                | -           | -                     |
| 10-13                        | "                | -           | -                     |
| 10-13                        | "                | -           | -                     |
| 10-13                        | Shoveler         | -           | -                     |
| <u>Yakima &amp; Potholes</u> |                  |             |                       |
| 10-12                        | Mallard          | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | 100         | 100                   |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-12                        | "                | -           | -                     |
| 10-27                        | Mallard          | -           | -                     |
| <u>Yakima River</u>          |                  |             |                       |
| 11-13                        | Mallard          | 110         | 100                   |
| 11-13                        | Teal             | -           | -                     |
| 12-8                         | Pintail          | -           | -                     |
| 12-8                         | "                | -           | -                     |
| 12-8                         | Mallard          | -           | -                     |
| 12-8                         | "                | -           | -                     |
| 12-8                         | "                | -           | -                     |
| 12-8                         | "                | -           | -                     |
| 12-8                         | "                | -           | -                     |
| 12-8                         | "                | -           | -                     |
| 12-29                        | Mallard          | -           | -                     |
| 12-29                        | "                | -           | -                     |

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

APPENDIX A  
TABLE 12

CONCENTRATIONS OF BETA EMITTERS IN WATERFOWL HEADS  
AND MUSCLES SAMPLED WITHIN THE HANFORD RESERVATION - 1963

Units of pc/g

| <u>Date</u>       | <u>Specie</u> | Muscle      |            | Head        |            |
|-------------------|---------------|-------------|------------|-------------|------------|
|                   |               | <u>Beta</u> | <u>pCi</u> | <u>Beta</u> | <u>pCi</u> |
| Reporting Limits  |               | 50          | 50         | 50          | 50         |
| <u>East Swamp</u> |               |             |            |             |            |
| 10-13             | Pintail       | -           | -          | -           | -          |
| 10-13             | Mallard       | -           | -          | -           | -          |
| 10-13             | Mallard       | 120         | -          | 180         | -          |
| 10-13             | Mallard       | -           | -          | 93          | -          |
| 10-13             | Mallard       | -           | -          | -           | -          |
| 11-8              | Mallard       | 400         | -          | 300         | -          |
| 11-8              | Ruddy Duck    | -           | -          | -           | -          |
| 11-8              | Ruddy Duck    | -           | -          | -           | -          |
| 11-8              | Coot          | 260         | -          | 270         | -          |
| 11-8              | Coot          | -           | -          | -           | -          |
| 12-11             | Merganser     | 3500        | 260        | 1600        | 250        |
| 12-11             | Ruddy Duck    | 1100        | -          | 870         | -          |
| 12-19             | Mallard       | -           | -          | -           | -          |
| <u>West Swamp</u> |               |             |            |             |            |
| 10-23             | Mallard       | 2300        | -          | 640         | -          |
| 10-23             | Mallard       | -           | -          | -           | -          |
| 10-23             | Coot          | 88          | -          | 490         | -          |
| 10-23             | Ruddy Duck    | 800         | -          | 1000        | -          |
| 10-23             | Shoveler      | 190         | -          | 170         | -          |
| 10-23             | Widgeon       | -           | -          | -           | -          |
| 11-8              | Coot          | -           | -          | -           | -          |
| 11-8              | Coot          | 350         | -          | 390         | -          |
| 11-15             | Ruddy Duck    | 4700        | -          | 1800        | -          |
| 11-15             | Ruddy Duck    | 1800        | -          | 1400        | 74         |
| 11-15             | Golden Eye    | 210         | 66         | 140         | 83         |
| 12-11             | Golden Eye    | 240         | -          | 270         | -          |
| 12-11             | Golden Eye    | 200         | -          | 68          | -          |
| 12-11             | Golden Eye    | 1600        | 360        | 1800        | 380        |
| 12-11             | Golden Eye    | -           | -          | -           | -          |
| 12-11             | Golden Eye    | 680         | 56         | 540         | 66         |
| 12-11             | Golden Eye    | 170         | -          | 370         | -          |

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

APPENDIX A  
TABLE 12 (Continued)

CONCENTRATIONS OF BETA EMITTERS IN WATERFOWL HEADS  
AND MUSCLES SAMPLED WITHIN THE HANFORD RESERVATION - 1963

Units of pc/ $\mu$

| <u>Date</u>                   | <u>Specie</u>  | <u>Muscle</u> |                       | <u>Head</u> |                       |
|-------------------------------|----------------|---------------|-----------------------|-------------|-----------------------|
|                               |                | <u>Beta</u>   | <u>P<sup>32</sup></u> | <u>Beta</u> | <u>P<sup>32</sup></u> |
| Reporting Limits              |                | 50            | 50                    | 50          | 50                    |
| <u>West Swamp (continued)</u> |                |               |                       |             |                       |
| 12-11                         | Golden Eye     | 950           | 54                    | 740         | 130                   |
| 12-11                         | Golden Eye     | 300           | 70                    | 190         | -                     |
| 12-11                         | Golden Eye     | 240           | 180                   | 1100        | 460                   |
| 12-11                         | Golden Eye     | 270           | 130                   | 510         | -                     |
| 12-11                         | Golden Eye     | 530           | -                     | 430         | -                     |
| 12-11                         | Golden Eye     | 2500          | -                     | 1300        | -                     |
| 12-11                         | Golden Eye     | 210           | -                     | 220         | -                     |
| <u>Hanford</u>                |                |               |                       |             |                       |
| 12-12                         | Teal           | 6100          | 4800                  | 5200        | 4600                  |
| 12-12                         | Teal           | 1200          | 1100                  | 1600        | 1300                  |
| 12-12                         | Teal           | 1700          | 1400                  | 2000        | 1700                  |
| 12-12                         | Teal           | 3100          | 2600                  | 3300        | 3100                  |
| 12-12                         | Teal           | 1600          | 1400                  | 1500        | 1500                  |
| 12-12                         | Teal           | 2300          | 2000                  | 2300        | 2200                  |
| 12-12                         | Coot           | 340           | 340                   | 320         | 270                   |
| 12-12                         | Coot           | 290           | 270                   | 280         | 220                   |
| <u>Upper River</u>            |                |               |                       |             |                       |
| 10-4                          | Merganser      | 1100          | 1100                  | 1100        | 920                   |
| 10-4                          | Merganser      | 2700          | 2800                  | 7400        | 7500                  |
| 10-7                          | Merganser      | 2500          | 2500                  | 2600        | 2300                  |
| 10-7                          | Merganser      | 3500          | 3500                  | 7800        | 7700                  |
| 10-7                          | Merganser      | 1100          | 1100                  | 2300        | 2400                  |
| 10-7                          | Mallard        | -             | -                     | -           | -                     |
| 10-7                          | Canadian Goose | -             | -                     | -           | -                     |
| 10-7                          | Asian Goose    | -             | -                     | -           | -                     |
| 10-8                          | Mallard        | 150           | 150                   | 170         | 140                   |
| 10-8                          | Mallard        | 120           | 110                   | 110         | 94                    |
| 10-8                          | Mallard        | -             | -                     | -           | -                     |
| 10-8                          | Coot           | -             | -                     | -           | -                     |
| 10-15                         | Merganser      | 1300          | 1100                  | 1100        | 1000                  |

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

APPENDIX A  
TABLE 12 (Continued)

CONCENTRATIONS OF BETA EMITTERS IN WATERFOWL HEADS  
AND MUSCLES SAMPLED WITHIN THE HANFORD RESERVATION - 1963

Units of pc/g

| <u>Date</u>                    | <u>Specie</u> | <u>Muscle</u> |                                   | <u>Head</u> |                                   |
|--------------------------------|---------------|---------------|-----------------------------------|-------------|-----------------------------------|
|                                |               | <u>Beta</u>   | <u><math>\text{P}^{32}</math></u> | <u>Beta</u> | <u><math>\text{P}^{32}</math></u> |
| Reporting Limits               |               | 50            | 50                                | 50          | 50                                |
| <u>Upper River (continued)</u> |               |               |                                   |             |                                   |
| 10-15                          | Merganser     | 1100          | 980                               | 1100        | 1000                              |
| 10-15                          | Mallard       | 170           | 130                               | 1300        | 1200                              |
| 10-15                          | Goose         | 130           | 120                               | 320         | 290                               |
| 10-25                          | Lesser Goose  | -             | -                                 | -           | -                                 |
| 10-25                          | Lesser Goose  | -             | -                                 | -           | -                                 |
| 10-25                          | Merganser     | 330           | 320                               | 280         | 280                               |
| 11-1                           | Coot          | 68            | 54                                | 340         | 99                                |
| 11-1                           | Mallard       | -             | -                                 | -           | -                                 |
| 11-1                           | Mallard       | 380           | 370                               | 340         | 320                               |
| 11-1                           | Mallard       | 2800          | 2800                              | 1900        | 2000                              |
| 11-1                           | Mallard       | 75            | 69                                | -           | -                                 |
| 11-7                           | Golden Eye    | 130           | 140                               | 110         | 130                               |
| 11-7                           | Golden Eye    | 250           | 220                               | 200         | 240                               |
| 11-7                           | Golden Eye    | 620           | 600                               | 620         | 700                               |
| 11-12                          | Merganser     | 950           | 900                               | 1000        | 1000                              |
| 11-26                          | Golden Eye    | 2400          | 2000                              | 3100        | 3100                              |
| 11-26                          | Golden Eye    | 2000          | 1900                              | 2500        | 2700                              |
| 11-26                          | Golden Eye    | 1400          | 1400                              | 2000        | 1900                              |
| 11-26                          | Golden Eye    | 3000          | 3200                              | 4000        | 4400                              |
| 11-26                          | Golden Eye    | 3000          | 3200                              | 3200        | 3100                              |
| 11-26                          | Golden Eye    | 4100          | 4200                              | 5700        | 5800                              |
| 11-26                          | Mallard       | 120           | 110                               | 160         | 110                               |
| 11-26                          | Mallard       | -             | -                                 | -           | -                                 |
| 11-26                          | Merganser     | 96            | 78                                | 69          | 67                                |
| 11-26                          | Coot          | 200           | 200                               | 170         | 120                               |
| 12-3                           | Goose         | -             | -                                 | -           | -                                 |
| 12-3                           | Goose         | -             | -                                 | -           | -                                 |
| 12-3                           | Goose         | -             | -                                 | -           | -                                 |
| 12-3                           | Mallard       | 150           | -                                 | 58          | -                                 |
| 12-3                           | Mallard       | 1500          | 1400                              | 1100        | 1000                              |
| 12-3                           | Golden Eye    | 300           | 250                               | 330         | 310                               |
| 12-3                           | Golden Eye    | 250           | 220                               | 360         | 380                               |
| 12-19                          | Coot          | -             | -                                 | -           | -                                 |
| 12-20                          | Golden Eye    | 1000          | 1100                              | 1200        | 1300                              |

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

APPENDIX A  
TABLE 12 (Continued)

CONCENTRATIONS OF BETA EMITTERS IN WATERFOWL HEADS  
AND MUSCLES SAMPLED WITHIN THE HANFORD RESERVATION - 1963

Units of  $\mu\text{c/g}$

| <u>Date</u>                    | <u>Specie</u> | <u>Muscle</u> |                       | <u>Head</u> |                       |
|--------------------------------|---------------|---------------|-----------------------|-------------|-----------------------|
|                                |               | <u>Beta</u>   | <u>P<sup>32</sup></u> | <u>Beta</u> | <u>P<sup>32</sup></u> |
| Reporting Limits               |               | 50            | 50                    | 50          | 50                    |
| <u>Upper River (continued)</u> |               |               |                       |             |                       |
| 12-23                          | Goose         | -             | -                     | -           | -                     |
| 12-23                          | Merganser     | 120           | 120                   | 110         | 110                   |
| <u>Lower River</u>             |               |               |                       |             |                       |
| 9-27                           | Mallard       | 64            | -                     | 160         | 140                   |
| 9-27                           | Mallard       | 61            | -                     | -           | -                     |
| 9-27                           | Mallard       | 300           | 290                   | 200         | 180                   |
| 9-27                           | Merganser     | 720           | 640                   | 620         | 590                   |
| 9-27                           | Merganser     | 400           | 280                   | 2200        | 2300                  |
| 9-27                           | Merganser     | 840           | 850                   | 590         | 600                   |
| 9-27                           | Merganser     | 1700          | 1300                  | 2000        | 2000                  |
| 9-27                           | Coot          | 78            | -                     | 120         | 71                    |
| 9-27                           | Coot          | 98            | 83                    | 130         | 71                    |
| 9-27                           | Coot          | -             | -                     | -           | -                     |
| 9-27                           | Coot          | 130           | 69                    | 200         | 62                    |
| 9-27                           | Shoveler      | -             | -                     | 73          | 73                    |
| 9-27                           | Scaup         | -             | -                     | -           | -                     |
| 9-27                           | Scaup         | -             | -                     | -           | -                     |
| 9-27                           | Scaup         | -             | -                     | -           | -                     |
| 9-27                           | Scaup         | -             | -                     | -           | -                     |
| 9-27                           | Ruddy Duck    | -             | -                     | -           | -                     |
| 9-27                           | Pacific Loon  | 1500          | 1500                  | 1700        | 1800                  |
| 9-30                           | Merganser     | 1800          | 1400                  | 1200        | 1100                  |
| 9-30                           | Mallard       | 53            | -                     | 76          | 57                    |
| 9-30                           | Mallard       | 53            | -                     | -           | -                     |
| 10-1                           | Mallard       | 79            | -                     | 260         | -                     |
| 10-1                           | Blue Teal     | 210           | -                     | 6700        | 85                    |
| 10-1                           | Coot          | 54            | -                     | 66          | -                     |
| 10-1                           | Coot          | 50            | -                     | 62          | -                     |
| 10-1                           | Coot          | 79            | -                     | 78          | -                     |
| 10-1                           | Coot          | 160           | -                     | 200         | 110                   |
| 10-21                          | Coot          | 200           | 150                   | 110         | 120                   |

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

APPENDIX A  
TABLE 12 (Continued)

CONCENTRATIONS OF BETA EMITTERS IN WATERFOWL HEADS  
AND MUSCLES SAMPLED WITHIN THE HANFORD RESERVATION - 1963

Units of pc/g

| <u>Date</u>                    | <u>Specie</u> | <u>Muscle</u> |                       | <u>Head</u> |                       |
|--------------------------------|---------------|---------------|-----------------------|-------------|-----------------------|
|                                |               | <u>Beta</u>   | <u>P<sup>32</sup></u> | <u>Beta</u> | <u>P<sup>32</sup></u> |
| Reporting Limits               |               | 50            | 50                    | 50          | 50                    |
| <u>Lower River (continued)</u> |               |               |                       |             |                       |
| 10-21                          | Coot          | -             | -                     | -           | -                     |
| 10-21                          | Coot          | -             | -                     | -           | -                     |
| 10-21                          | Coot          | -             | -                     | -           | -                     |
| 10-21                          | Coot          | -             | -                     | -           | -                     |
| 10-21                          | Mallard       | 360           | 360                   | 250         | 260                   |
| 10-21                          | Mallard       | 65            | 61                    | -           | 54                    |
| 10-21                          | Mallard       | -             | -                     | -           | -                     |
| 11-4                           | Coot          | 61            | 52                    | 92          | 72                    |
| 11-4                           | Coot          | 81            | 66                    | 73          | 62                    |
| 11-4                           | Coot          | -             | -                     | 52          | 52                    |
| 11-4                           | Coot          | -             | -                     | 80          | 50                    |
| 11-4                           | Coot          | -             | -                     | 58          | -                     |
| 11-4                           | Coot          | 52            | -                     | 91          | 64                    |
| 11-4                           | Merganser     | 400           | 400                   | 380         | 410                   |
| 11-4                           | Merganser     | 480           | 450                   | 900         | 960                   |
| 11-4                           | Merganser     | 1300          | 1200                  | 1300        | 1400                  |
| 11-4                           | Mallard       | 60            | 51                    | -           | -                     |
| 11-4                           | Mallard       | -             | -                     | -           | -                     |
| 11-4                           | Mallard       | 60            | -                     | -           | 52                    |
| 11-4                           | Mallard       | -             | -                     | -           | -                     |
| 11-4                           | Lesser Goose  | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | 70            | 75                    | -           | 64                    |
| 11-11                          | Mallard       | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | 99            | 100                   | 99          | 100                   |
| 11-11                          | Mallard       | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | -             | -                     | -           | -                     |
| 11-11                          | Mallard       | 95            | 110                   | 77          | 74                    |
| 11-11                          | Mallard       | 150           | 170                   | 510         | 130                   |
| 11-11                          | Lesser Goose  | -             | -                     | -           | -                     |
| 11-11                          | Ruddy Duck    | 2100          | 1900                  | 1400        | 1600                  |
| 11-11                          | Scaup         | 90            | 97                    | 110         | 110                   |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |

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

APPENDIX A  
TABLE 12 (Continued)

CONCENTRATIONS OF BETA EMITTERS IN WATERFOWL HEADS  
AND MUSCLES SAMPLED WITHIN THE HANFORD RESERVATION - 1963

Units of pc/g

| <u>Date</u>                    | <u>Specie</u> | <u>Muscle</u> |                       | <u>Head</u> |                       |
|--------------------------------|---------------|---------------|-----------------------|-------------|-----------------------|
|                                |               | <u>Beta</u>   | <u>P<sub>32</sub></u> | <u>Beta</u> | <u>P<sub>32</sub></u> |
| Reporting Limits               |               | 50            | 50                    | 50          | 50                    |
| <u>Lower River (continued)</u> |               |               |                       |             |                       |
| 12-27                          | Ruddy Duck    | 270           | 280                   | 290         | 400                   |
| 12-27                          | Ruddy Duck    | 220           | 210                   | 180         | 170                   |
| 12-27                          | Gadwall       | 1300          | 1300                  | 920         | 870                   |
| 12-27                          | Golden Eye    | 510           | 410                   | 620         | 650                   |
| 12-27                          | Coot          | 240           | 200                   | 390         | 340                   |
| 12-27                          | Coot          | 1200          | 990                   | 1100        | 1200                  |
| 12-27                          | Coot          | 490           | 530                   | 350         | 330                   |
| <u>Ringold</u>                 |               |               |                       |             |                       |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |
| 11-13                          | Mallard       | 330           | 380                   | 260         | 250                   |
| 11-13                          | Mallard       | -             | -                     | 250         | 270                   |
| 11-13                          | Mallard       | 70            | 69                    | -           | -                     |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |
| 11-13                          | Mallard       | -             | -                     | -           | -                     |
| 11-13                          | Lesser Goose  | -             | -                     | -           | -                     |
| 11-13                          | Coot          | -             | -                     | -           | -                     |
| 12-9                           | Mallard       | -             | -                     | -           | -                     |
| 12-9                           | Mallard       | -             | -                     | -           | -                     |
| 12-9                           | Mallard       | -             | 51                    | -           | -                     |
| 12-9                           | Mallard       | 150           | 120                   | 230         | 130                   |
| 12-9                           | Mallard       | -             | -                     | 62          | -                     |
| 12-9                           | Mallard       | -             | -                     | -           | -                     |
| 12-9                           | Mallard       | 250           | 270                   | 180         | 190                   |
| 12-9                           | Mallard       | -             | -                     | -           | -                     |
| 12-9                           | Cackler       | -             | -                     | -           | -                     |
| <u>McNary</u>                  |               |               |                       |             |                       |
| 11-19                          | Teal          | 150           | 150                   | 180         | 210                   |
| 11-19                          | Widgeon       | -             | -                     | -           | -                     |

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

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VIII. APPENDIX B

ATMOSPHERIC AND BEEF THYROID  
SAMPLE RESULTS

APPENDIX B  
TABLE 1

AVERAGE BETA ACTIVITY ON FILTERS  
FROM PACIFIC NORTHWEST STATIONS - 1963  
Units of pc/m<sup>3</sup> of Filtered Air

| <u>Week<br/>Ending<br/>Date</u> | <u>Benton City,<br/>Washington</u> | <u>Pasco,<br/>Washington</u> | <u>Kennewick,<br/>Washington</u> | <u>Byers<br/>Landing</u> | <u>Richland,<br/>Washington</u> | <u>Walla Walla,<br/>Washington</u> | <u>Yakima,<br/>Washington</u> |
|---------------------------------|------------------------------------|------------------------------|----------------------------------|--------------------------|---------------------------------|------------------------------------|-------------------------------|
| 1-4                             | 7.8                                | 8.1                          | 5.6                              | 4.9                      | 7.4                             | 8.2                                |                               |
| 1-11                            | 3.6                                | 3.2                          | 2.3                              | 3.6                      | 6.1                             | 6.6                                | 3.2                           |
| 1-18                            | 10.                                | 11.                          | 6.9                              | 3.7                      | 5.7                             | 4.7                                | 6.2                           |
| 1-25                            | 12.                                | 12.                          | 10.                              | 11.                      | 15                              | 15                                 | 5.4                           |
| 2-1                             | 14.                                | 18.                          | 12.                              | 10.                      | 14                              | 13                                 | 8.7                           |
| 2-8                             | 7.5                                | 8.8                          | 7.6                              | 4.5                      | 6.4                             | 7.2                                | 8.7                           |
| 2-15                            | 6.3                                | 6.7                          | 5.4                              | 4.1                      | 7.4                             | 6.9                                |                               |
| 2-22                            | 4.7                                | 5.8                          | 4.6                              | 1.3                      | 2.6                             | 4.0                                |                               |
| 3-2                             | 3.2                                | 3.8                          | 2.8                              | 2.5                      | 3.3                             | 4.0                                | 2.2                           |
| 3-8                             | 3.4                                | 3.8                          | 2.7                              | 4.0                      | 5.4                             | 4.2                                | 2.2                           |
| 3-15                            | 7.2                                | 7.5                          | 6.3                              | 6.4                      | 6.9                             | 6.1                                | 2.2                           |
| 3-22                            | 4.8                                | 4.9                          | 4.5                              | 2.9                      | 4.2                             | 5.8                                | 5.9                           |
| 3-31                            | 6.1                                | 5.1                          | 6.1                              | 5.6                      | 5.4                             | 7.0                                | 5.5                           |
| 4-7                             | 3.0                                | 4.4                          | 4.7                              | 4.7                      | 5.9                             | 5.0                                | 3.7                           |
| 4-14                            | 2.1                                | 3.9                          | 4.6                              | 3.4                      | 5.4                             | 6.7                                | 4.9                           |
| 4-20                            | 2.7                                | 6.1                          | 7.3                              | 5.7                      | 5.3                             | 6.9                                | 4.9                           |
| 4-26                            | 0.8                                | 1.3                          | 3.0                              | 6.4                      | 7.7                             | 7.5                                | 1.5                           |
| 5-3                             | 4.7                                | 5.2                          | 8.2                              | 8.2                      | 7.3                             | 9.2                                | 5.5                           |
| 5-10                            | 2.7                                | 5.0                          | 5.3                              | 6.1                      | 7.6                             | 6.6                                | 6.0                           |
| 5-17                            | 3.8                                | 7.2                          | 7.1                              | 6.0                      | 8.6                             | 7.9                                |                               |
| 5-24                            | 5.8                                | 9.1                          | 14                               | 12                       | 14                              | 17                                 | 14                            |
| 5-31                            | 5.4                                | 12                           | 16                               | 13                       | 12                              | 9.3                                | 12                            |
| 6-7                             | 3.2                                | 8.0                          | 5.6                              | 4.2                      | 4.9                             | 9.3                                | 4.2                           |
| 6-14                            | 1.7                                | 5.5                          | 4.6                              | 4.0                      | 4.4                             | 6.7                                | 6.4                           |
| 6-21                            | 4.1                                | 9.3                          | 8.4                              | 10                       | 9.1                             | 11                                 | 6.4                           |
| 6-28                            | 3.0                                | 1.0                          | 3.5                              | 3.1                      | 3.8                             | 4.3                                | 4.0                           |
| 7-5                             | 3.7                                | 5.0                          | 4.6                              | 5.3                      | 6.7                             | 7.3                                | 4.0                           |
| 7-12                            | 5.5                                | 3.5                          | 6.9                              | 5.7                      | 5.5                             | 4.9                                | 4.0                           |

No entry indicates no analysis made.

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APPENDIX B  
TABLE 1 (Continued)

**AVERAGE BETA ACTIVITY ON FILTERS  
FROM PACIFIC NORTHWEST STATIONS - 1963**  
Units of pc/m<sup>3</sup> of Filtered Air

| <u>Week<br/>Ending<br/>Date</u> | <u>Benton City,<br/>Washington</u> | <u>Pasco,<br/>Washington</u> | <u>Kennewick,<br/>Washington</u> | <u>Byers<br/>Landing</u> | <u>Richland,<br/>Washington</u> | <u>Walla Walla,<br/>Washington</u> | <u>Yakima,<br/>Washington</u> |
|---------------------------------|------------------------------------|------------------------------|----------------------------------|--------------------------|---------------------------------|------------------------------------|-------------------------------|
| 7-19                            | 1.3                                | 2.9                          | 3.5                              | 3.7                      | 4.3                             | 5.3                                | 4.0                           |
| 7-26                            | 3.5                                | 4.6                          | 6.1                              | 6.1                      | 6.7                             | 6.0                                | 5.6                           |
| 8-2                             | 5.4                                | 5.9                          | 6.5                              | 6.5                      | 6.3                             | 6.9                                | 5.6                           |
| 8-9                             | 4.8                                | 4.9                          | 6.1                              | 5.3                      | 7.4                             | 7.2                                | 6.8                           |
| 8-16                            | 2.8                                | 5.0                          | 5.7                              | 5.3                      | 5.3                             | 3.6                                | 3.4                           |
| 8-23                            | 2.2                                | 5.1                          | 4.0                              | 3.9                      | 3.9                             | 4.4                                | 3.4                           |
| 8-30                            | 1.7                                | 2.9                          | 2.8                              | 3.8                      | 4.0                             | 4.6                                | 3.4                           |
| 9-6                             | 2.4                                | 4.1                          | 4.0                              | 3.8                      | 3.7                             | 4.0                                | 3.4                           |
| 9-13                            | 2.1                                | 4.6                          | 4.8                              | 2.3                      | 3.5                             | 2.1                                | 3.3                           |
| 9-20                            | 1.0                                | 2.4                          | 2.0                              | 2.3                      | 1.8                             | 1.7                                | 2.4                           |
| 9-27                            | 0.9                                | 2.4                          | 2.0                              | 0.5                      | 2.3                             | 3.0                                | 2.4                           |
| 10-4                            | 1.3                                | 2.2                          | 2.3                              | 3.0                      | 2.8                             | 3.3                                | 2.6                           |
| 10-11                           | 1.1                                | 1.5                          | 2.8                              | 2.1                      | 2.3                             | 2.7                                | 2.6                           |
| 10-18                           | 0.8                                | 2.2                          | 2.0                              | 1.1                      | 2.1                             | 2.9                                | 1.3                           |
| 10-25                           | 0.9                                | 1.3                          | 1.8                              | 1.1                      | 1.3                             | 1.4                                | 1.3                           |
| 11-1                            | 0.4                                | 0.9                          | 0.9                              | 0.7                      | 0.8                             | 1.1                                | 1.3                           |
| 11-8                            | 0.7                                | 0.8                          | 0.8                              | 0.8                      | 1.0                             | 1.0                                | 1.1                           |
| 11-15                           | 0.8                                | 1.0                          | 0.9                              | 1.6                      | 1.2                             | 1.4                                | 0.7                           |
| 11-22                           | 0.6                                | 0.8                          | 0.7                              | 0.2                      | 1.0                             | 1.6                                | 1.0                           |
| 11-29                           | 0.7                                | 0.9                          | 1.0                              | 0.4                      | 0.3                             | 0.6                                | 0.5                           |
| 12-6                            | 0.5                                | 0.5                          | 0.6                              | 0.5                      | 0.5                             | 0.6                                | 0.5                           |
| 12-13                           | 0.4                                | 0.4                          | 0.5                              | 0.9                      | 0.5                             | 0.7                                | 0.5                           |
| 12-21                           | 0.6                                | 0.5                          | 0.8                              | 1.4                      | 0.7                             | 0.5                                | 0.6                           |
| 12-27                           | 0.5                                | 0.5                          | 0.6                              | 1.1                      | 0.6                             | 1.2                                | 0.2                           |

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APPENDIX B  
TABLE 1 (Continued)

AVEPAGE BETA ACTIVITY ON FILTERS  
FROM PACIFIC NORTHWEST STATIONS - 1963

Units of pc/m<sup>3</sup> of Filtered Air

| <u>Week<br/>Ending<br/>Date</u> | <u>Seattle,<br/>Washington</u> | <u>Spokane,<br/>Washington</u> | <u>Boise,<br/>Idaho</u> | <u>Lewiston<br/>Idaho</u> | <u>Meacham,<br/>Oregon</u> | <u>Klamath Falls,<br/>Oregon</u> | <u>Great Falls,<br/>Montana</u> |
|---------------------------------|--------------------------------|--------------------------------|-------------------------|---------------------------|----------------------------|----------------------------------|---------------------------------|
| 1-4                             | 4.0                            | 6.1                            | 9.7                     | 7.6                       | 7.2                        | 7.6                              |                                 |
| 1-11                            | 14                             | 4.0                            | 10                      | 7.3                       | 8.6                        | 10                               | 10                              |
| 1-18                            | 5.7                            | 5.2                            | 6.3                     | 4.2                       | 2.8                        | 4.3                              | 8.5                             |
| 1-25                            | 11                             | 14                             | 13                      | 13                        | 13                         | 8.6                              | 8.6                             |
| 2-1                             | 12                             |                                | 13                      | 11                        | 7.9                        | 8.6                              | 10                              |
| 2-8                             | 9.7                            | 7.6                            | 7.8                     | 4.3                       | 7.1                        | 8.6                              | 10                              |
| 2-15                            | 14                             | 7.3                            | 19                      | 16                        | 14                         | 8.6                              | 10                              |
| 2-22                            | 5.1                            | 1.8                            | 8.0                     | 3.4                       | 4.9                        | 10                               | 12                              |
| 3-2                             | 4.2                            | 1.8                            | 7.4                     | 4.0                       | 4.9                        | 3.0                              | 6.1                             |
| 3-8                             | 4.5                            | 3.9                            | 5.9                     | 5.3                       | 5.6                        | 6.5                              | 5.2                             |
| 3-15                            | 8.7                            | 6.1                            | 7.1                     | 6.0                       | 4.4                        | 6.5                              | 4.9                             |
| 3-22                            | 3.9                            | 3.8                            | 3.2                     | 5.0                       | 5.5                        | 8.2                              | 7.7                             |
| 3-31                            | 4.4                            | 4.5                            | 9.2                     | 6.3                       | 4.6                        | 5.4                              | 8.6                             |
| 4-7                             | 2.1                            | 4.7                            | 4.5                     | 5.8                       | 7.4                        | 5.4                              | 10                              |
| 4-14                            | 2.1                            | 5.1                            | 15                      | 8.5                       | 4.5                        | 5.4                              | 8.4                             |
| 4-20                            | 2.1                            | 5.3                            | 7.2                     | 9.9                       | 7.1                        | 5.8                              | 5.8                             |
| 4-26                            | 2.6                            | 7.0                            | 8.5                     | 7.5                       | 7.9                        | 3.6                              | 5.8                             |
| 5-3                             | 2.5                            | 6.1                            | 7.2                     | 8.1                       | 7.7                        | 15                               | 5.6                             |
| 5-10                            | 2.6                            | 5.9                            | 7.0                     | 7.6                       | 6.2                        | 2.6                              |                                 |
| 5-17                            | 3.3                            | 6.0                            | 13                      | 5.0                       | 5.5                        | 3.9                              | 8.0                             |
| 5-24                            | 5.3                            | 13                             | 13                      | 15                        | 6.9                        | 7.2                              | 7.6                             |
| 5-31                            | 3.2                            | 9.5                            | 10                      | 13                        | 18                         | 10                               | 12                              |
| 6-7                             | 1.7                            | 4.5                            | 10                      | 5.0                       | 11                         | 11                               | 12                              |
| 6-14                            | 3.5                            | 4.8                            | 8.0                     | 3.9                       | 4.4                        | 5.2                              | 5.6                             |
| 6-21                            | 4.2                            | 6.5                            | 11                      | 10                        | 2.7                        | 5.2                              | 6.8                             |
| 6-28                            | 2.1                            | 3.8                            | 6.3                     | 6.4                       | 10                         | 7.5                              | 5.1                             |
| 7-5                             | 2.9                            |                                | 6.3                     | 6.4                       | 3.7                        | 5.2                              | 7.2                             |
| 7-12                            | 2.3                            | 2.7                            | 7.0                     | 4.8                       | 8.0                        | 6.3                              | 7.7                             |
|                                 |                                |                                |                         |                           | 5.1                        | 6.3                              | 4.1                             |

No entry indicates no analysis made.

APPENDIX B  
TABLE 1 (Continued)

AVERAGE BETA ACTIVITY ON FILTERS  
FROM PACIFIC NORTHWEST STATIONS - 1963

Units of pc/m<sup>3</sup> of Filtered Air

| Week<br>Ending<br>Date | <u>Seattle,<br/>Washington</u> | <u>Spokane,<br/>Washington</u> | <u>Boise,<br/>Idaho</u> | <u>Lewiston,<br/>Idaho</u> | <u>Meacham,<br/>Oregon</u> | <u>Klamath Falls,<br/>Oregon</u> | <u>Great Falls,<br/>Montana</u> |
|------------------------|--------------------------------|--------------------------------|-------------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|
| 7-19                   | 1.7                            | 4.0                            | 7.6                     | 6.0                        | 4.8                        | 5.9                              | 4.6                             |
| 7-26                   | 3.0                            | 5.2                            | 10                      | 7.8                        | 6.9                        | 8.6                              | 8.5                             |
| 8-2                    | 2.8                            | 5.9                            | 11                      | 7.2                        | 6.5                        | 7.1                              | 8.4                             |
| 8-9                    | 2.3                            | 3.5                            | 5.8                     | 7.8                        | 7.0                        | 5.8                              | 5.9                             |
| 8-16                   | 3.0                            | 3.7                            | 5.4                     | 5.5                        | 4.7                        | 4.7                              | 4.6                             |
| 8-23                   | 1.9                            | 2.7                            | 5.5                     | 4.7                        | 3.2                        | 4.4                              | 3.7                             |
| 8-30                   | 2.0                            | 3.2                            | 5.2                     | 4.3                        | 3.9                        | 3.8                              | 4.6                             |
| 9-6                    | 1.8                            | 2.4                            | 2.8                     | 4.6                        | 3.7                        | 2.7                              | 2.6                             |
| 9-13                   | 1.3                            | 2.5                            | 2.8                     | 3.2                        | 2.8                        | 2.1                              | 2.7                             |
| 9-20                   | 0.9                            | 1.3                            | 2.9                     | 2.1                        | 1.1                        | 2.1                              | 1.5                             |
| 9-27                   | 1.8                            |                                | 2.3                     | 2.1                        | 3.1                        | 2.7                              | 2.8                             |
| 10-4                   | 1.8                            | 1.8                            | 2.6                     | 3.5                        | 3.2                        | 2.5                              | 2.4                             |
| 10-11                  | 1.7                            | 1.4                            | 2.3                     | 2.0                        | 2.3                        | 2.7                              | 1.6                             |
| 10-18                  | 1.3                            | 0.8                            | 3.4                     | 2.3                        | 2.7                        | 1.4                              | 3.3                             |
| 10-25                  | 0.1                            | 0.8                            | 2.2                     | 1.7                        | 1.5                        | 1.4                              | 0.8                             |
| 11-1                   | 0.8                            | 0.8                            | 2.1                     | 1.1                        | 1.5                        | 1.9                              | 1.7                             |
| 11-8                   | 0.8                            | 0.6                            | 0.8                     | 1.1                        | 0.7                        | 1.1                              | 1.9                             |
| 11-15                  | 0.9                            | 0.8                            | 0.8                     | 1.1                        | 0.5                        | 0.3                              | 0.9                             |
| 11-22                  | 0.8                            | 0.7                            | 1.3                     | 1.0                        | 0.7                        | 0.6                              | 0.8                             |
| 11-29                  | 0.5                            | 0.8                            | 1.3                     | 0.5                        | 0.5                        | 1.2                              | 1.1                             |
| 12-6                   | 1.0                            | 0.7                            | 1.2                     | 1.1                        | 1.1                        |                                  | 1.8                             |
| 12-13                  | 0.9                            | 1.7                            | 1.3                     | 0.6                        | 0.7                        |                                  | 1.0                             |
| 12-21                  | 1.0                            | 1.7                            | 0.7                     | 0.4                        | 0.7                        |                                  | 1.0                             |
| 12-27                  | 0.9                            | 0.9                            | 0.9                     | 1.1                        | 0.7                        | 1.1                              | 1.4                             |

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No entry indicates no analysis made.

APPENDIX B  
TABLE 2

CONCENTRATIONS OF ATMOSPHERIC  $I^{131}$   
IN THE VICINITY OF HANFORD - 1963

Units of pc/m<sup>3</sup>

| <u>Date</u> | <u>Richland</u> | <u>North Richland</u> | <u>Benton City</u> | <u>Pasco</u> | <u>Byers Landing</u> |
|-------------|-----------------|-----------------------|--------------------|--------------|----------------------|
| 1-2         | 0.015           | 0.093                 | 0.031              | 0.015        | 0.194                |
| 1-8         | 0.015           | 0.093                 | 0.050              | 0.015        | 0.053                |
| 1-15        | 0.028           | 0.176                 | 0.137              | 0.081        | 0.042                |
| 1-22        | 0.034           | 0.112                 | 0.169              | 0.016        | 0.042                |
| 1-29        | 0.035           | 0.357                 | 0.083              | 0.083        | 0.071                |
| 2-5         | 0.024           | 0.015                 | 0.176              | 0.030        | 0.031                |
| 2-12        | 0               | 0.071                 | 0.081              | 0.017        | 0.024                |
| 2-19        | 0.013           | 0.066                 | 0.048              | 0.024        | 0.010                |
| 2-26        | 0.011           | 0.015                 | 0.074              | 0.025        | 0.019                |
| 3-5         | 0.004           | 0.044                 | 0.035              | 0.013        | 0.015                |
| 3-12        | 0.012           | 0.107                 | 0.026              | 0.006        | 0.019                |
| 3-19        | 0.032           | 0.042                 | 0.058              | 0.022        | 0.059                |
| 3-26        | 0.007           | 0.096                 | 0.107              | 0.024        | 0.018                |
| 4-2         | 0.005           | 0.005                 | 0.031              | 0.001        | 0.009                |
| 4-9         | 0.013           | 0.015                 | 0                  | 0.010        | 0.001                |
| 4-16        | 0.010           | 0.007                 | 0.015              | 0            | 0.018                |
| 4-23        | 0.008           | 0.004                 | 0.009              | 0.010        | 0.057                |
| 4-30        | 0.010           | 0.019                 | 0.005              | 0.007        | 0.004                |
| 5-7         | 0.003           | 0                     | 0.007              | 0.020        | 0.018                |
| 5-14        | 0.004           | 0.013                 | 0.001              | 0.008        | 0.008                |
| 5-21        | 0.005           | 0                     | 0.037              | 0.005        | 0.011                |
| 5-28        | 0.014           | 0.005                 | 0.016              | 0.020        | 0.015                |
| 6-4         | 0.021           | 0.018                 | 0.026              | 0.007        | 0                    |
| 6-11        | 0.015           | 0.003                 | 0.011              | 0.009        | 0.064                |
| 6-18        | 0.072           | 0.040                 | 0.031              | 0.051        | 0.054                |
| 6-25        | 0               | 0.011                 | 0.004              | 0.004        | 0.021                |
| 7-2         | 0.001           | 0.011                 | 0.011              | 0.10         | 0.004                |
| 7-9         | 0.016           | 0                     | 0.004              | 0.010        | 0.015                |
| 7-16        | 0               | 0.006                 | 0.002              | 0.009        | 0.010                |
| 7-23        | 0.007           | 0.003                 | 0.005              | 0.005        | 0.011                |
| 7-30        | 0.008           | 0.003                 | 0.006              | 0.009        | 0.011                |
| 8-6         | 0.002           | 0.004                 | 0                  | 0.006        | 0.229                |
| 8-13        | 0.005           | 0                     | 0.002              | 0.015        | 0.005                |
| 8-20        | 0.006           | 0                     | 0.017              | 0            | 0.018                |
| 8-27        | 0.015           | 0.018                 | 0.018              | 0.005        | 0.005                |
| 9-3         | 0.114           | 0.078                 | 0.056              | 0.026        | 0.120                |
| 9-7         | 0.237           |                       | 0.142              | 0.083        | 0.032                |
| 9-10        | 0.025           | 0.099                 | 0.006              | 0.019        | 0.017                |
| 9-17        | 0.017           | 0.004                 | 0.012              | 0            | 0.079                |
| 9-24        | 0.025           | 0.001                 | 0.025              | 0.001        | 0.029                |

APPENDIX B  
TABLE 2 (Continued)

CONCENTRATIONS OF ATMOSPHERIC I<sup>131</sup>  
IN THE VICINITY OF HANFORD - 1963

Units of pc/m<sup>3</sup>

| <u>Date</u>                        | <u>Richland</u> | <u>North Richland</u> | <u>Benton City</u> | <u>Pasco</u> | <u>Byers Landing</u> |
|------------------------------------|-----------------|-----------------------|--------------------|--------------|----------------------|
| 10-1                               | 0.018           | 0.001                 | 0                  | 0            |                      |
| 10-7                               | 0.018           | Discontinued          | 0                  | 0            | 0.009<br>0.014       |
| <u>Prosser</u><br><u>Barricade</u> |                 |                       |                    |              |                      |
| 10-14                              | 0.023           | 0.016                 | 0.017              | 0.007        | 0.014                |
| 10-21                              | 0.015           | 0.016                 | 0.004              | 0.013        | 0.007                |
| 10-28                              | 0.024           | 0.038                 | 0.011              | 0.020        | 0.022                |
| 11-4                               | 0.001           | 0.004                 | 0                  | 0            | 0.065                |
| 11-11                              | 0.012           | 0.003                 | 0.021              | 0.024        | 0.010                |
| 11-18                              | 0.004           | 0.043                 | 0.008              | 0.006        | 0.011                |
| 11-25                              | 0.008           | 0.008                 | 0.003              | 0            | 0.007                |
| 12-2                               | 0.004           | 0.017                 | 0.008              | 0.015        | 0.005                |
| 12-9                               | 0.001           | 0.015                 | 0.004              | 0.008        | 0.016                |
| 12-16                              | 0.045           | 0.054                 | 0.041              | 0.029        | 0.045                |
| 12-23                              | 0.009           | 0.030                 | 0.024              | 0.009        | 0.020                |
| 12-30                              | 0.002           | 0.013                 | 0.014              | 0            | 0.016                |

APPENDIX B  
TABLE 3

QUANTITY OF I<sup>131</sup> RELEASED  
FROM THE SEPARATIONS AREAS - 1963

| <u>Month</u> | <u>Average<br/>curies/day</u> |
|--------------|-------------------------------|
| January      | 0.11                          |
| February     | 0.073                         |
| March        | 0.10                          |
| April        | 0.17                          |
| May          | 0.14                          |
| June         | 0.54                          |
| July         | 0.18                          |
| August       | 0.10                          |
| September    | 2.4                           |
| October      | 0.21                          |
| November     | 0.18                          |
| December     | 0.36                          |

APPENDIX B  
TABLE 4

I<sup>131</sup> IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963

Units of pc/g

| <u>Date Sampled</u>           | <u>Thyroid Wt (g)</u> | <u>I<sup>131</sup> Concentration</u> | <u>Grazing Area</u> |
|-------------------------------|-----------------------|--------------------------------------|---------------------|
| <u>Pasco, Washington</u>      |                       |                                      |                     |
| 5-27                          | 29                    | 10                                   | Kennewick           |
| 5-27                          | 44                    | 8.4                                  | Kennewick           |
| 7-27                          | 35                    | 31                                   | Mesa                |
| <u>Moses Lake, Washington</u> |                       |                                      |                     |
| 1-2                           | 40                    | 3.4                                  | Warden              |
| 1-2                           | 57                    | < 1.7                                | Moses Lake          |
| 1-2                           | 46                    | 26                                   | Moses Lake          |
| 1-2                           | 48                    | 200                                  | Moses Lake          |
| 1-2                           | 53                    | 100                                  | Moses Lake          |
| 1-26                          | 33                    | 69                                   | Wilson Creek        |
| 1-26                          | 34                    | 15                                   | Othello             |
| 1-26                          | 42                    | < 2.1                                | Moses Lake          |
| 1-26                          | 23                    | 18                                   | Coulee City         |
| 1-26                          | 48                    | < 1.9                                | Quincy              |
| 2-9                           | 38                    | < 2.5                                | Quincy              |
| 2-9                           | 33                    | 3.1                                  | Moses Lake          |
| 2-9                           | 50                    | < 1.9                                | Moses Lake          |
| 2-9                           | 46                    | 2.3                                  | Moses Lake          |
| 2-9                           | 55                    | < 1.7                                | Moses Lake          |
| 2-23                          | 41                    | 11                                   | Warden              |
| 2-23                          | 27                    | 6.8                                  | Warden              |
| 2-23                          | 31                    | 11                                   | Warden              |
| 2-23                          | 27                    | 11                                   | Warden              |
| 2-23                          | 26                    | 11                                   | Warden              |
| 3-9                           | 42                    | 3.3                                  | Lind                |
| 3-9                           | 33                    | < 2.9                                | Othello             |
| 3-9                           | 41                    | 11                                   | Lind                |
| 3-9                           | 38                    | < 2.5                                | Odessa              |
| 3-9                           | 46                    | < 2.1                                | Warden              |
| 3-23                          | 53                    | 2.5                                  | Douglas             |
| 3-23                          | 42                    | 2.8                                  | Coulee City         |
| 3-23                          | 32                    | 3.9                                  | Moses Lake          |
| 3-23                          | 55                    | < 1.5                                | Quincy              |
| 3-23                          | 29                    | < 2.9                                | Quincy              |
| 4-6                           | 36                    | 12                                   | Warden              |
| 4-6                           | 41                    | 6.1                                  | Warden              |
| 4-6                           | 61                    | < 1.6                                | Ephrata             |
| 4-6                           | 49                    | < 2.0                                | Moses Lake          |
| 4-6                           | 44                    | < 2.2                                | Ephrata             |

APPENDIX B  
TABLE 4 (Continued)

$I^{131}$  IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963

Units of pc/g

| <u>Date Sampled</u>                       | <u>Thyroid Wt (g)</u> | <u><math>I^{131}</math> Concentration</u> | <u>Grazing Area</u> |
|---|-----------------------|---|---------------------|
| <u>Moses Lake, Washington (Continued)</u> |                       |   |                     |
| 4-20                                      | 33                    | 6.1                                       | Moses Lake Block 41 |
| 4-20                                      | 47                    | < 1.9                                     | Moses Lake Block 89 |
| 4-20                                      | 47                    | 4.0                                       | Moses Lake Block 40 |
| 4-20                                      | 27                    | < 3.3                                     | Moses Lake Block 41 |
| 4-20                                      | 34                    | 3.5                                       | Wilbur              |
| 5-4                                       | 44                    | 14  | Ritzville           |
| 5-4                                       | 64                    | 4.6                                       | Moses Lake          |
| 5-4                                       | 38                    | < 2.6                                     | Ritzville           |
| 5-4                                       | 40                    | < 2.4                                     | Moses Lake          |
| 5-4                                       | 55                    | 9.9                                       | Moses Lake          |
| 5-18                                      | 45                    | 7.9                                       | Ephrata             |
| 5-18                                      | 32                    | 8.6                                       | Quincy              |
| 5-18                                      | 48                    | 7.0                                       | Moses Lake          |
| 5-18                                      | 37                    | 32  | Ritzville           |
| 5-18                                      | 23                    | 11  | Quincy              |
| 6-1                                       | 20                    | < 4.5                                     | Wilbur              |
| 6-1                                       | 19                    | < 4.8                                     | Moses Lake          |
| 6-1                                       | 21                    | < 4.3                                     | Moses Lake          |
| 6-1                                       | 50                    | 4.2                                       | Lind                |
| 6-1                                       | 25                    | < 3.6                                     | Moses Lake          |
| 6-15                                      | 54                    | 4.5                                       | Moses Lake (grass)  |
| 6-15                                      | 54                    | < 1.7                                     | Quincy              |
| 6-15                                      | 63                    | < 1.4                                     | Hartline (grass)    |
| 6-15                                      | 53                    | 4.1                                       | Othello             |
| 6-15                                      | 49                    | < 1.8                                     | Othello             |
| 6-29                                      | 17                    | < 5.1                                     | Mattawa (grass)     |
| 6-29                                      | 12                    | < 7.3                                     | Moses Lake (grass)  |
| 6-29                                      | 18                    | 16  | Quincy              |
| 6-29                                      | 16                    | < 5.5                                     | Othello             |
| 6-29                                      | 23                    | 14  | Moses Lake (grain)  |
| 7-13                                      | 45                    | 2.8                                       | Othello             |
| 7-13                                      | 35                    | 3.1                                       | Othello             |
| 7-13                                      | 45                    | 4.2                                       | Coulee City         |
| 7-13                                      | 59                    | 2.9                                       | Lamona              |
| 7-13                                      | 47                    | 5.2                                       | LaCrosse            |
| 7-27                                      | 60                    | 5.1                                       | Moses Lake          |
| 7-27                                      | 39                    | 4.0                                       | Moses Lake          |
| 7-27                                      | 29                    | 5.3                                       | Grand Coulee        |
| 7-27                                      | 61                    | 2.1                                       | Quincy              |
| 8-10                                      | 48                    | < 1.9                                     | Moses Lake          |
| 8-10                                      | 48                    | 2.5                                       | Moses Lake          |

APPENDIX B  
TABLE 4 (Continued)

$I^{131}$  IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963  
Units of pc/g

| <u>Date Sampled</u>                       | <u>Thyroid Wt (g)</u> | <u><math>I^{131}</math> Concentration</u> | <u>Grazing Area</u> |
|---|-----------------------|---|---------------------|
| <u>Moses Lake, Washington (Continued)</u> |                       |   |                     |
| 8-10                                      | 34                    | < 2.7                                     | Wilson Creek        |
| 8-10                                      | 40                    | < 2.3                                     | Moses Lake          |
| 8-10                                      | 33                    | < 2.7                                     | Moses Lake          |
| 8-24                                      | 42                    | < 2.1                                     | Moses Lake          |
| 8-24                                      | 55                    | 2.2                                       | Entiat              |
| 8-24                                      | 43                    | < 2.1                                     | Ellensburg          |
| 8-24                                      | 41                    | < 2.2                                     | Mesa                |
| 8-24                                      | 47                    | 3.6                                       | Connell             |
| 9-7                                       | 67                    | 25  | Ephrata             |
| 9-7                                       | 93                    | 25  | Moses Lake          |
| 9-7                                       | 43                    | 3.6                                       | Moses Lake          |
| 9-7                                       | 48                    | 7.4                                       | Mesa                |
| 9-7                                       | 48                    | 13  | Almira              |
| 9-21                                      | 45                    | 8.8                                       | Othello             |
| 9-21                                      | 35                    | < 2.6                                     | Warden              |
| 9-21                                      | 52                    | 6.5                                       | Elmer City          |
| 9-21                                      | 49                    | 5.2                                       | Pasco               |
| 9-21                                      | 74                    | 18  | Wauconda            |
| 10-5                                      | 43                    | < 2.2                                     | (Not given)         |
| 10-5                                      | 49                    | 8.8                                       | " "                 |
| 10-5                                      | 55                    | < 1.8                                     | " "                 |
| 10-5                                      | 34                    | 4.1                                       | " "                 |
| 10-5                                      | 49                    | 4.5                                       | " "                 |
| 10-19                                     | 49                    | < 2.8                                     | Wenatchee           |
| 10-19                                     | 43                    | < 3.2                                     | Cunningham          |
| 10-19                                     | 50                    | < 2.8                                     | Connell             |
| 10-19                                     | 52                    | < 2.7                                     | Warden              |
| 10-19                                     | 69                    | 3.5                                       | Moses Lake          |
| 11-2                                      | 54                    | < 1.7                                     | Othello             |
| 11-2                                      | 73                    | 3.3                                       | Othello             |
| 11-2                                      | 62                    | 5.1                                       | Moses Lake          |
| 11-2                                      | 45                    | 6.3                                       | Stratford           |
| 11-2                                      | 47                    | 3.9                                       | Electric City       |
| 11-16                                     | 70                    | < 1.8                                     | Connell             |
| 11-16                                     | 40                    | < 3.2                                     | Moses Lake          |
| 11-16                                     | 51                    | < 2.5                                     | Moses Lake          |
| 11-16                                     | 92                    | < 1.4                                     | Moses Lake          |
| 11-16                                     | 45                    | < 2.7                                     | Moses Lake          |
| 11-30                                     | 37                    | 8.6                                       | Odessa              |
| 11-30                                     | 42                    | 3.1                                       | Connell             |

APPENDIX B  
TABLE 4 (Continued)

<sup>I<sup>131</sup></sup> IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963

Units of pc/g

| <u>Date Sampled</u>                       | <u>Thyroid Wt (g)</u> | <u>I<sup>131</sup> Concentration</u> | <u>Grazing Area</u> |
|---|-----------------------|--------------------------------------|---------------------|
| <u>Moses Lake, Washington (Continued)</u> |                       |                                      |                     |
| 11-30                                     | 83                    | < 1.5                                | Moses Lake          |
| 11-30                                     | 31                    | 8.1                                  | Ritzville           |
| 11-30                                     | 37                    | 4.2                                  | Warden              |
| 12-14                                     | 67                    | 5.0                                  | Palisades           |
| 12-14                                     | 57                    | < 2.6                                | Almira              |
| 12-14                                     | 56                    | 16                                   | Othello             |
| 12-14                                     | 52                    | < 2.8                                | Warden              |
| 12-14                                     | 60                    | < 2.4                                | Warden              |
| 12-28                                     | 41                    | 5.2                                  | Moses Lake          |
| 12-28                                     | 60                    | < 2.5                                | Ellensburg          |
| 12-28                                     | 55                    | < 2.7                                | Connell             |
| 12-28                                     | 28                    | < 5.2                                | Moses Lake          |
| 12-28                                     | 39                    | < 2.9                                | Mesa                |

Wenatchee, Washington

|      |    |       |                       |
|------|----|-------|-----------------------|
| 1-2  | 37 | 250   | S.E. Chelan           |
| 1-2  | 47 | 630   | S.E. Chelan           |
| 1-2  | 46 | 25    | Grant Co.             |
| 1-2  | 66 | 6.1   | W. Douglas Co.        |
| 1-2  | 39 | 46    | S. Grant Co.          |
| 1-15 | 36 | 9.3   | S.E. Chelan Co.       |
| 1-15 | 33 | 8.5   | S.E. Chelan Co.       |
| 1-15 | 57 | 2.0   | W. Douglas Co.        |
| 1-15 | 36 | 240   | W. Lincoln Co.        |
| 1-15 | 49 | 180   | W. Lincoln Co.        |
| 1-30 | 39 | 2.3   | S.E. Chelan Co.       |
| 1-30 | 35 | < 2.6 | S.E. Chelan Co.       |
| 1-30 | 35 | 3.0   | S.E. Chelan Co.       |
| 1-30 | 50 | 4.2   | S.E. Chelan Co.       |
| 1-30 | 21 | 4.4   | S.E. Chelan Co.       |
| 2-13 | 47 | 48    | S.E. Chelan Co.       |
| 2-13 | 39 | 2.6   | S.E. Chelan Co.       |
| 2-13 | 38 | < 2.6 | S. Central Chelan Co. |
| 2-13 | 71 | 1.6   | S. Central Chelan Co. |
| 2-13 | 53 | 2.1   | S.E. Grant Co.        |
| 2-26 | 38 | < 2.7 | S.E. Grant Co.        |
| 2-26 | 33 | < 3.1 | N. Grant Co.          |
| 2-26 | 84 | 4.8   | W. Douglas            |
| 2-26 | 33 | 7.0   | W. Douglas            |
| 2-26 | 43 | 6.4   | Grant Co.             |
|      |    |       | W. Grant Co.          |

APPENDIX B  
TABLE 4 (Continued)

I<sup>131</sup> IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963

Units of pc/g

| <u>Date<br/>Sampled</u>                  | <u>Thyroid<br/>Wt (g)</u> | <u>I<sup>131</sup><br/>Concentration</u> | <u>Grazing Area</u> |
|--|---------------------------|--|---------------------|
| <u>Wenatchee, Washington (Continued)</u> |                           |  |                     |
| 3-12                                     | 20                        | < 4.7                                    | S.E. Chelan Co.     |
| 3-13                                     | 30                        | < 3.1                                    | S.W. Douglas Co.    |
| 3-12                                     | 41                        | < 2.3                                    | S.W. Douglas Co.    |
| 3-12                                     | 64                        | 3.1                                      | S.E. Chelan Co.     |
| 3-12                                     | 38                        | < 2.5                                    | N.W. Grant Co.      |
| 3-25                                     | 28                        | 3.9                                      | W. Douglas Co.      |
| 3-25                                     | 39                        | 2.5                                      | W. Douglas Co.      |
| 3-25                                     | 32                        | < 2.7                                    | W. Douglas Co.      |
| 3-25                                     | 26                        | 5.5                                      | S.E. Chelan Co.     |
| 3-25                                     | 32                        | 9.3                                      | N.C. Douglas Co.    |
| 4-11                                     | 99                        | < 0.9                                    | E. Chelan Co.       |
| 4-11                                     | 49                        | < 1.8                                    | N. Grant Co.        |
| 4-11                                     | 40                        | < 2.2                                    | N. Grant Co.        |
| 4-11                                     | 57                        | < 1.6                                    | N. C. Douglas Co.   |
| 4-11                                     | 67                        | < 1.3                                    | N. C. Douglas Co.   |
| 10-29                                    | 26                        | 5.3                                      | Douglas Co.         |
| 10-29                                    | 61                        | 2.3                                      | S. Chelan Co.       |
| 10-29                                    | 44                        | < 2.6                                    | W. Douglas Co.      |
| 10-29                                    | 42                        | 7.4                                      | S.E. Chelan Co.     |
| 10-29                                    | 61                        | 2.3                                      | S.W. Douglas Co.    |
| 11-12                                    | 25                        | < 4.2                                    | S.E. Chelan Co.     |
| 11-12                                    | 31                        | < 3.4                                    | S.E. Chelan Co.     |
| 11-13                                    | 55                        | < 1.8                                    | S.E. Chelan Co.     |
| 11-13                                    | 67                        | < 1.5                                    | S.E. Chelan Co.     |
| 11-13                                    | 82                        | < 1.2                                    | S.E. Chelan Co.     |
| 11-27                                    | 57                        | < 2.5                                    | S. Chelan Co.       |
| 11-27                                    | 59                        | < 2.4                                    | S.E. Chelan Co.     |
| 11-27                                    | 54                        | < 2.6                                    | W. Douglas Co.      |
| 11-27                                    | 32                        | < 4.4                                    | W. Douglas Co.      |
| 11-27                                    | 39                        | < 3.6                                    | S.E. Chelan Co.     |
| 12-11                                    | 41                        | < 2.5                                    | S.E. Chelan Co.     |
| 12-11                                    | 41                        | < 2.5                                    | S.E. Chelan         |
| 12-11                                    | 53                        | < 2.0                                    | S.E. Chelan         |
| 12-11                                    | 47                        | < 2.2                                    | S. E. Chelan        |
| 12-11                                    | 45                        | < 2.4                                    | S. E. Chelan        |
| 12-23                                    | 29                        | < 4.2                                    | S. E. Chelan        |
| 12-23                                    | 39                        | < 3.1                                    | S.W. Grant Co.      |
| 12-23                                    | 37                        | < 3.3                                    | E. Chelan Co.       |
| 12-23                                    | 34                        | < 3.6                                    | S.E. Chelan Co.     |
| 12-23                                    | 44                        | < 2.8                                    | S.E. Chelan Co.     |

APPENDIX B  
TABLE 4 (Continued)

I<sup>131</sup> IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963  
Units of pc/g

| <u>Date Sampled</u>            | <u>Thyroid Wt (g)</u> | <u>I<sup>131</sup> Concentration</u> | <u>Grazing Area</u>   |
|--------------------------------|-----------------------|--------------------------------------|-----------------------|
| <u>Walla Walla, Washington</u> |                       |                                      |                       |
| 2-20                           | 45                    | 16                                   | Walla Walla State Pen |
| 12-6                           | 20                    | < 6.3                                | " " "                 |
| 12-6                           | 25                    | < 5.0                                | Lowden                |
| 12-6                           | 37                    | < 3.4                                | Lowden                |
| 12-6                           | 28                    | < 4.5                                | Dayton                |
| 12-6                           | 37                    | < 3.4                                | Lowden                |
| 12-17                          | 26                    | < 4.3                                | Prospect Heights      |
| 12-17                          | 71                    | < 1.6                                | Walla Walla           |
| 12-17                          | 40                    | < 2.8                                | College Place         |
| 12-17                          | 55                    | < 2.1                                | Walla Walla           |
| 12-17                          | 33                    | < 3.4                                | " "                   |
| 12-31                          | 50                    | 2.5                                  | Prospect Heights      |
| 12-31                          | 51                    | < 2.2                                | Walla Walla           |
|                                |                       |                                      | College Place         |
|                                |                       |                                      | Walla Walla           |
|                                |                       |                                      | Lowden                |
|                                |                       |                                      | Burbank               |
| <u>Toppenish, Washington</u>   |                       |                                      |                       |
| 1-4                            | 26                    | 55                                   | Wapato                |
| 1-4                            | 37                    | 3.6                                  | Moxee                 |
| 1-4                            | 29                    | 41                                   | Wapato                |
| 1-4                            | 15                    | 120                                  | White Swan            |
| 1-4                            | 16                    | 210                                  | White Swan            |
| 1-18                           | 28                    | 5.9                                  | Wapato                |
| 1-18                           | 38                    | 23                                   | Wapato                |
| 1-18                           | 37                    | 27                                   | Wapato                |
| 1-18                           | 40                    | 13                                   | White Swan            |
| 2-15                           | 60                    | < 1.6                                | Parker                |
| 2-15                           | 42                    | < 2.3                                | Wapato                |
| 2-15                           | 52                    | 3.7                                  | Toppenish             |
| 2-15                           | 61                    | 6.5                                  | Toppenish             |
| 2-15                           | 43                    | 5.6                                  | Yakima                |
| 3-1                            | 27                    | < 3.5                                | Zillah                |
| 3-1                            | 38                    | < 2.5                                | Naches                |
| 3-1                            | 49                    | < 1.9                                | Toppenish             |
| 3-1                            | 30                    | < 3.2                                | Wapato                |
| 3-1                            | 47                    | < 2.0                                | Wapato                |
| 3-15                           | 23                    | < 3.6                                | Selah                 |
| 3-15                           | 34                    | 3.8                                  | White Swan            |
| 3-15                           | 63                    | < 1.3                                | Wapato                |

APPENDIX B  
TABLE 4 (Continued)

I<sup>131</sup> IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963

Units of pc/g

| <u>Date Sampled</u>                      | <u>Thyroid Wt (g)</u> | <u>I<sup>131</sup> Concentration</u> | <u>Grazing Area</u>      |
|--|-----------------------|--------------------------------------|--------------------------|
| <u>Toppenish, Washington (Continued)</u> |                       |                                      |                          |
| 3-15                                     | 63                    | < 1.3                                | Wapato (Supp. Feed)      |
| 3-15                                     | 37                    | 13                                   | White Swan               |
| 4-5                                      | 32                    | < 3.3                                | White Swan               |
| 4-5                                      | 63                    | < 1.7                                | White Swan               |
| 4-5                                      | 34                    | < 3.1                                | White Swan               |
| 4-5                                      | 44                    | < 2.4                                | White Swan               |
| 4-26                                     | 60                    | < 1.5                                | Zillah                   |
| 4-26                                     | 91                    | < 9.7                                | Yakima                   |
| 4-26                                     | 50                    | < 1.8                                | Wapato                   |
| 4-26                                     | 69                    | < 1.3                                | Wapato                   |
| 4-26                                     | 49                    | < 1.8                                | Yakima                   |
| 5-24                                     | 38                    | < 2.4                                | Moxee                    |
| 5-24                                     | 44                    | < 2.1                                | Zillah                   |
| 5-24                                     | 49                    | < 1.9                                | Wapato                   |
| 5-24                                     | 54                    | < 1.7                                | Yakima                   |
| 6-7                                      | 56                    | < 1.7                                | Wapato (Suppl. Feed)     |
| 6-7                                      | 55                    | < 1.8                                | Selah                    |
| 6-7                                      | 35                    | < 2.8                                | Yakima (Suppl. Feed)     |
| 6-7                                      | 58                    | < 1.7                                | Selah                    |
| 6-7                                      | 160                   | < 0.58                               | Yakima                   |
| 6-21                                     | 36                    | < 2.8                                | Wapato                   |
| 6-21                                     | 32                    | < 3.1                                | White Swan               |
| 6-21                                     | 50                    | < 2.0                                | Yakima                   |
| 6-21                                     | 39                    | < 2.4                                | Toppenish                |
| 6-21                                     | 28                    | < 3.3                                | Satus                    |
| 6-28                                     | 74                    | < 1.2                                | Wapato                   |
| 6-28                                     | 56                    | 2.0                                  | Wahkiacus                |
| 6-28                                     | 44                    | < 2.0                                | White Swan (Suppl. Feed) |
| 6-28                                     | 44                    | 3.0                                  | Wahkiacus                |
| 6-28                                     | 35                    | 2.9                                  | Wahkiacus                |
| 7-12                                     | 41                    | < 2.1                                | Wapato                   |
| 7-12                                     | 65                    | 2.1                                  | Toppenish                |
| 7-12                                     | 53                    | 1.8                                  | Wapato                   |
| 7-12                                     | 58                    | 2.1                                  | Toppenish                |
| 7-26                                     | 53                    | 1.9                                  | Wiley City               |
| 7-26                                     | 46                    | < 1.9                                | Wapato                   |
| 7-26                                     | 45                    | < 2.0                                | Toppenish                |
| 8-2                                      | 70                    | 1.6                                  | Zillah                   |
| 8-2                                      | 37                    | 3.8                                  | Satus                    |
| 8-2                                      | 22                    | 4.3                                  | Satus                    |
| 8-2                                      | 30                    | 3.3                                  | Satus                    |

APPENDIX B  
TABLE 4 (Continued)

I<sup>131</sup> IN BEEF THYROIDS FROM  
CATTLE SLAUGHTERED AT SEVERAL LOCATIONS - 1963

Units of pc/g

| <u>Date Sampled</u>                      | <u>Thyroid Wt (g)</u> | <u>I<sup>131</sup> Concentration</u> | <u>Grazing Area</u> |
|--|-----------------------|--------------------------------------|---------------------|
| <u>Toppenish, Washington (Continued)</u> |                       |                                      |                     |
| 8-23                                     | 36                    | < 2.7                                | Toppenish           |
| 8-23                                     | 37                    | < 2.6                                | Toppenish           |
| 8-23                                     | 41                    | < 2.4                                | Moxee               |
| 8-23                                     | 74                    | < 1.3                                | Yakima              |
| 8-23                                     | 30                    | < 3.2                                | White Swan          |
| 9-13                                     | 60                    | 47                                   | Wapato              |
| 9-13                                     | 37                    | 2.5                                  | Wapato              |
| 9-13                                     | 61                    | 63                                   | Outlook, Wash.      |
| 9-13                                     | 33                    | 14                                   | Wapato              |
| 9-13                                     | 45                    | 47                                   | Brownstone, Wash.   |
| 9-27                                     | 59                    | 32                                   | Toppenish           |
| 9-27                                     | 65                    | < 1.4                                | Toppenish           |
| 9-27                                     | 56                    | 21                                   | Moxee               |
| 9-27                                     | 58                    | 28                                   | Yakima              |
| 9-27                                     | 35                    | 17                                   | Selah               |
| 10-11                                    | 60                    | < 1.6                                | Toppenish           |
| 10-11                                    | 62                    | 4.2                                  | Yakima              |
| 10-11                                    | 38                    | 4.5                                  | Yakima              |
| 10-11                                    | 39                    | 5.4                                  | Yakima              |
| 10-11                                    | 30                    | 4.2                                  | Union Gap           |
| 10-26                                    | 40                    | 12                                   | Toppenish           |
| 10-26                                    | 32                    | 16                                   | Toppenish           |
| 10-26                                    | 38                    | 14                                   | Toppenish           |
| 10-26                                    | 40                    | 7.9                                  | Wapato              |
| 10-26                                    | 27                    | 7.8                                  | Wapato              |
| 11-1                                     | 63                    | < 2.1                                | Yakima              |
| 11-1                                     | 43                    | < 3.1                                | Yakima              |
| 11-1                                     | 66                    | 2.9                                  | Yakima              |
| 11-1                                     | 56                    | 3.1                                  | Yakima              |
| 11-1                                     | 61                    | 4.2                                  | Moxee               |
| 11-12                                    | 37                    | < 2.5                                | Toppenish           |
| 11-12                                    | 65                    | < 1.5                                | Yakima              |
| 11-12                                    | 38                    | < 2.6                                | Wapato              |
| 11-12                                    | 37                    | < 2.6                                | Wapato              |
| 11-12                                    | 68                    | 2.4                                  | Union Gap           |
| 12-10                                    | 43                    | < 2.6                                | Yakima              |
| 12-10                                    | 47                    | < 2.4                                | Yakima              |
| 12-10                                    | 35                    | < 3.2                                | Yakima              |
| 12-10                                    | 49                    | < 2.3                                | Naches              |
| 12-10                                    | 84                    | < 1.3                                | Yakima              |

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HW-80991

IX. APPENDIX C

FARM PRODUCE AND COMMERCIAL  
FOODSTUFF RESULTS

APPENDIX C  
TABLE 1

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| Date                          | I <sup>131</sup> | K <sup>40</sup> | Zn <sup>65</sup> | Cs <sup>137</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|-------------------------------|------------------|-----------------|------------------|-------------------|-----------------|------------------|
| Reporting<br>Limits           | 3                | 300             | 80               | 30                | 100             | 2                |
| Piverview Irrigation District |                  |                 |                  |                   |                 |                  |
| 1-2                           | 4                | 1400            | 260              | 44                | -               |                  |
| 1-8                           | -                | 1500            | 220              | 30                | -               | 3.5              |
| 1-16                          | -                | 1400            | 150              | 56                | -               |                  |
| 1-22                          | 3                | 1600            | 210              | 66                | -               |                  |
| 1-30                          | 7                | 1300            | 190              | 32                | -               |                  |
| 2-5                           | 4                | 1500            | 220              | 48                | -               |                  |
| 2-13                          | -                | 1500            | 210              | 45                | -               |                  |
| 2-19                          | 5                | 1500            | 130              | 57                | -               |                  |
| 2-27                          | -                | 1500            | 210              | 55                | -               |                  |
| 3-5                           | -                | 1300            | 190              | 53                | -               | 2.2              |
| 3-13                          | -                | 1700            | 180              | 79                | -               |                  |
| 3-19                          | -                | 1500            | 140              | 52                | -               |                  |
| 3-27                          | 4                | 1400            | 180              | 53                | -               |                  |
| 4-2                           | -                | 1500            | 260              | 41                | -               | 4.7              |
| 4-10                          | -                | 1200            | 170              | 58                | -               |                  |
| 4-16                          | -                | 1300            | 150              | 32                | -               |                  |
| 4-24                          | -                | 1300            | 180              | -                 | -               |                  |
| 4-30                          | -                |                 |                  |                   |                 |                  |
| 5-7                           | -                | 1600            | 120              | 45                | -               | 4.7              |
| 5-15                          | 6                | 1600            | 570              | 130               |                 |                  |
| 5-22                          | -                | 1100            | 520              | 75                |                 |                  |
| 5-28                          | -                | 1400            | 530              | 98                |                 |                  |
| 6-5                           | 3                | 1400            | 620              | 140               | 1300            | 15               |
| 6-11                          | 6                | 1300            | 680              | 160               |                 |                  |
| 6-19                          | 9                | 1200            | 710              | 120               |                 |                  |
| 6-25                          | 5                | 1200            | 750              | 84                |                 |                  |
| 7-1                           | 6                | 1500            | 760              | 100               |                 |                  |
| 7-9                           | 4                | 1400            | 650              | 110               | 1200            | < 6.0            |
| 7-15                          | 3                | 1200            | 840              | 130               |                 |                  |
| 7-23                          | 4                | 1800            | 900              | 180               |                 |                  |
| 7-31                          | 6                | 1100            | 880              | 96                |                 |                  |
| 8-6                           | -                | 1300            | 850              | 70                | 1100            | 11               |
| 8-14                          | -                | 1200            | 800              | 120               |                 |                  |
| 8-20                          | -                | 1600            | 670              | 110               |                 |                  |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>      | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |

Riverview Irrigation District (continued)

|       |    |      |      |     |      |       |
|-------|----|------|------|-----|------|-------|
| 8-28  | 3  | 1600 | 860  | 150 |      |       |
| 9-5   | 40 | 1300 | 720  | 110 | 1200 | < 3.8 |
| 9-11  | 37 | 1600 | 740  | 71  |      | < 8.1 |
| 9-19  | 12 | 1300 | 700  | 82  |      |       |
| 9-25  | 7  | 1700 | 760  | 110 |      |       |
| 10-1  | 5  | 1300 | 820  | 130 | 1800 |       |
| 10-9  | 10 | 1600 | 730  | 75  |      |       |
| 10-15 | 11 | 1700 | 920  | 110 |      |       |
| 10-23 | 7  | 1600 | 1200 | 68  |      |       |
| 10-29 | 6  | 1400 | 1500 | 70  |      |       |
| 11-6  | -  | 1400 | 870  | 53  | 2500 |       |
| 11-12 | 3  | 1600 | 1000 | 66  |      |       |
| 11-20 | -  | 1600 | 440  | 53  |      |       |
| 11-26 | -  | 1700 | 350  | 70  |      |       |
| 12-4  | 4  | 1700 | 320  | 98  |      |       |
| 12-10 | -  | 1300 | 210  | 98  |      | 2.0   |
| 12-18 | 4  | 1600 | 240  | 120 |      |       |
| 12-26 | -  | 1600 | 230  | 130 |      |       |

Ringold

|      |     |      |      |     |      |    |
|------|-----|------|------|-----|------|----|
| 6-11 | 14  | 590  | 1100 | 46  |      |    |
| 6-19 | 9   | 890  | 600  | 35  |      |    |
| 6-25 | 11  | 1200 | 560  | -   |      |    |
| 7-3  | 7   | 1000 | 660  | 47  |      |    |
| 7-9  | 4   | 1200 | 830  | 110 |      |    |
| 7-15 | 4   | 1400 | 690  | 140 |      |    |
| 7-23 | 6   | 1900 | 720  | 130 |      |    |
| 7-31 | 14  | 1500 | 820  | 57  |      |    |
| 8-6  | < 6 | 1700 | 1000 | 37  |      |    |
| 8-14 | -   | 1300 | 1100 | 57  |      |    |
| 8-20 | < 6 | 1900 | 1100 | 79  |      |    |
| 8-28 | 6   | 1800 | 700  | 140 |      |    |
| 9-4  | 16  | 1600 | 790  | 85  | 1600 |    |
| 9-5  | 30  | 1700 | 550  | 97  |      | 21 |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>                | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|----------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits        | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Ringold (continued)</u> |                        |                       |                        |                         |                       |                        |
| 9-6                        | 36                     | 1500                  | 640                    | 160                     |                       |                        |
| 9-7                        | 33                     | 1300                  | 420                    | 88                      |                       |                        |
| 9-8                        | 28                     | 1500                  | 600                    | 46                      |                       |                        |
| 9-9                        | 89                     | 1400                  | 470                    | 86                      |                       |                        |
| 9-10                       | 23                     | 1200                  | 300                    | 87                      |                       |                        |
| 9-11                       | 15                     | 1700                  | 610                    | 41                      |                       |                        |
| 9-12                       | 12                     | 2000                  | 640                    | 69                      |                       |                        |
| 9-13                       | 8                      | 1800                  | 740                    | 79                      |                       |                        |
| 9-16                       | 6                      | 1600                  | 890                    | 77                      |                       |                        |
| 9-17                       | 32                     | 1800                  | 800                    | 100                     |                       |                        |
| 9-18                       | 8                      | 1800                  | 890                    | 87                      |                       |                        |
| 9-19                       | 12                     | 1300                  | 710                    | 80                      |                       |                        |
| 9-20                       | 31                     | 1700                  | 1100                   | 110                     |                       |                        |
| 9-23                       | 11                     | 2000                  | 970                    | 85                      |                       |                        |
| 9-24                       | 14                     | 2000                  | 1200                   | 110                     |                       |                        |
| 9-25                       | 9                      | 2000                  | 1300                   | 110                     |                       |                        |
| 9-26                       | 14                     | 1600                  | 1100                   | 70                      |                       |                        |
| 9-27                       | 11                     | 6600                  | 810                    | -                       |                       |                        |
| 9-30                       | 5                      | 1600                  | 630                    | 64                      |                       |                        |
| 10-1                       | 4                      | 1600                  | 670                    | 80                      |                       |                        |
| 10-9                       | 7                      | 2000                  | 1200                   | 110                     |                       |                        |
| 10-15                      | 4                      | 1900                  | 1100                   | 130                     |                       |                        |
| 10-23                      | 10                     | 1600                  | 1200                   | 160                     |                       |                        |
| 10-29                      | 4                      | 1500                  | 1100                   | 160                     |                       |                        |
| 11-6                       | -                      | 1500                  | 1100                   | 150                     |                       |                        |
| 11-12                      | 9                      | 1600                  | 1300                   | 220                     |                       |                        |
| 11-20                      | 14                     | 2000                  | 1200                   | 240                     |                       |                        |

Pasco

|      |   |      |    |
|------|---|------|----|
| 4-30 | 4 |      |    |
| 5-1  | 4 | 680  | 91 |
| 5-2  | 6 | 910  | 77 |
| 5-3  | 3 | 1100 | 89 |

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

APPENDIX C  
TABLE 1 (continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>                 | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Pasco (continued)</u>    |                        |                       |                        |                         |                       |                        |
| 5-6                         | 6                      | 740                   |                        | 81                      |                       |                        |
| 5-7                         | -                      | 900                   |                        | 110                     |                       |                        |
| 5-8                         | -                      | 750                   |                        | 130                     |                       | 20                     |
| 5-9                         | -                      | 1200                  |                        | 170                     |                       |                        |
| 5-10                        | 5                      | 1400                  | -                      | 150                     |                       |                        |
| 5-13                        | -                      | 1500                  |                        | 130                     |                       |                        |
| 5-14                        | -                      | 1400                  |                        | 150                     |                       |                        |
| 5-15                        | -                      | 1500                  |                        | 140                     |                       |                        |
| 5-16                        | 3                      | 1200                  |                        | 130                     |                       |                        |
| 5-17                        | -                      | 1600                  |                        | 130                     |                       |                        |
| 5-20                        | 4                      | 1200                  |                        | 100                     |                       |                        |
| 5-21                        | -                      | 1400                  |                        | 97                      |                       |                        |
| 5-22                        | -                      | 1300                  |                        | 90                      |                       |                        |
| 5-23                        | -                      | 1300                  |                        | 57                      |                       |                        |
| 5-24                        | -                      | 1400                  | -                      | 95                      |                       |                        |
| 5-27                        | -                      | 1800                  | -                      | 57                      |                       |                        |
| 5-28                        | -                      | 1200                  | -                      | 50                      |                       |                        |
| 5-29                        | -                      | 1600                  | -                      | 55                      |                       |                        |
| 5-31                        | 3                      | 1300                  | -                      | 51                      |                       |                        |
| 6-3                         | -                      | 1500                  | 130                    | 56                      |                       |                        |
| 6-4                         | 5                      | 1300                  | 170                    | 59                      |                       |                        |
| 6-5                         | 9                      | 1600                  | 180                    | 55                      |                       | 6.9                    |
| 6-6                         | 8                      | 1300                  | -                      | 110                     |                       |                        |
| 6-7                         | 4                      | 1300                  | 130                    | 51                      |                       |                        |
| 6-10                        | -                      | 1400                  | -                      | 97                      |                       |                        |
| 6-11                        | 4                      | 1300                  | 120                    | 60                      |                       |                        |
| 6-12                        | 7                      | 1200                  | 150                    | 79                      |                       |                        |
| 6-13                        | 8                      | 1800                  | 180                    | 50                      |                       |                        |
| 6-14                        | 11                     | 1500                  | -                      | 87                      |                       |                        |
| 6-17                        | 6                      | 1500                  | 93                     | 66                      |                       |                        |
| 6-18                        | 6                      | 1400                  | 160                    | 49                      |                       |                        |
| 6-19                        | 6                      | 1300                  | 250                    | 67                      |                       |                        |
| 6-20                        | 6                      | 1300                  | 320                    | 64                      |                       |                        |
| 6-21                        | 7                      | 1200                  | 260                    | 56                      |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>              | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits      | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Pasco (continued)</u> |                        |                       |                        |                         |                       |                        |
| 6-24                     | 4                      | 1400                  | 170                    | 66                      |                       |                        |
| 6-25                     | 5                      | 1300                  | 180                    | 31                      |                       |                        |
| 6-26                     | 4                      | 1300                  | 210                    | 40                      |                       |                        |
| 6-27                     | 7                      | 1400                  | 280                    | 50                      |                       |                        |
| 6-28                     | 11                     | 5600                  | 210                    | 53                      |                       |                        |
| 7-1                      | 3                      | 1500                  | 320                    | 42                      |                       |                        |
| 7-2                      | 3                      | 1400                  | 330                    | 63                      |                       |                        |
| 7-3                      | 4                      | 1600                  | 230                    | 68                      |                       |                        |
| 7-5                      | -                      | 910                   | 200                    | 61                      |                       |                        |
| 7-9                      | -                      | 1100                  | 91                     | 150                     |                       |                        |
| 7-10                     | -                      | 1300                  | 120                    | 140                     |                       | 12                     |
| 7-12                     | -                      | 1300                  | 86                     | 96                      |                       |                        |
| 7-15                     | 3                      | 1400                  | 160                    | 84                      |                       |                        |
| 7-16                     | 4                      | 850                   | 180                    | 90                      |                       |                        |
| 7-17                     | 3                      | 1200                  | 180                    | 97                      |                       |                        |
| 7-19                     | -                      | 1100                  | 180                    | 66                      |                       |                        |
| 7-22                     | -                      | 1300                  | 110                    | 75                      |                       |                        |
| 7-23                     | 4                      | 1600                  | 90                     | 80                      |                       |                        |
| 7-24                     | 7                      | 1400                  | 110                    | 67                      |                       |                        |
| 7-26                     | 11                     | 1800                  | 210                    | 120                     |                       |                        |
| 7-29                     | 7                      | 1600                  | 130                    | 100                     |                       |                        |
| 7-30                     | 7                      | 1700                  | 200                    | 130                     |                       |                        |
| 7-31                     | 9                      | 1400                  | 140                    | 59                      |                       |                        |
| 8-1                      | 10                     | 1200                  | 160                    | 50                      |                       | 4.8                    |
| 8-2                      | 5                      | 1300                  | 100                    | 45                      |                       |                        |
| 8-5                      | -                      | 1800                  | 210                    | 40                      |                       |                        |
| 8-6                      | -                      | 1400                  | 260                    | 40                      |                       |                        |
| 8-7                      | -                      | 1400                  | 180                    | 32                      |                       |                        |
| 8-8                      | -                      | 1100                  | 220                    | 45                      |                       |                        |
| 8-9                      | -                      | 1300                  | 160                    | -                       |                       |                        |
| 8-12                     | -                      | 1400                  | 120                    | 49                      |                       |                        |
| 8-13                     | -                      | 1300                  | 140                    | 55                      |                       |                        |
| 8-14                     | -                      | 1100                  | 160                    | 40                      |                       |                        |
| 8-15                     | -                      | 1600                  | 160                    | 51                      |                       |                        |
| 8-16                     | -                      | 1200                  | 170                    | 51                      |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>              | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits         | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Pasco (continued)</u> |                        |                       |                        |                         |                       |                        |
| 8-19                     | -                      | 1600                  | 110                    | 53                      |                       |                        |
| 8-20                     | -                      | 1600                  | 130                    | 57                      |                       |                        |
| 8-21                     | -                      | 1600                  | 120                    | 61                      |                       |                        |
| 8-22                     | -                      | 1500                  | 100                    | -                       |                       |                        |
| 8-23                     | -                      | 1900                  | 140                    | 56                      |                       |                        |
| 8-26                     | -                      | 1300                  | 150                    | 92                      |                       |                        |
| 8-27                     | -                      | 1700                  | -                      | 67                      |                       |                        |
| 8-28                     | 5                      | 1600                  | 150                    | 110                     |                       |                        |
| 8-29                     | -                      | 1400                  | 94                     | 80                      |                       |                        |
| 8-30                     | -                      | 1500                  | 230                    | 58                      |                       |                        |
| 9-3                      | -                      | 1500                  | 150                    | 43                      |                       |                        |
| 9-4                      | 19                     | 1900                  | 210                    | 81                      |                       |                        |
| 9-5                      | 23                     | 1400                  | -                      | 57                      |                       |                        |
| 9-6                      | 17                     | 1400                  | 140                    | 47                      |                       |                        |
| 9-7                      | 14                     | 1500                  | 110                    | 48                      |                       |                        |
| 9-8                      | 17                     | 1800                  | 230                    | 110                     |                       |                        |
| 9-9                      | 37                     | 1600                  | 150                    | 81                      |                       |                        |
| 9-10                     | 21                     | 1600                  | 97                     | 58                      |                       |                        |
| 9-11                     | 14                     | 1600                  | 98                     | 33                      |                       |                        |
| 9-12                     | 14                     | 1400                  | 150                    | 71                      |                       |                        |
| 9-13                     | 20                     | 1200                  | -                      | 48                      |                       |                        |
| 9-14                     | 8                      | 1600                  | 100                    | 76                      |                       |                        |
| 9-16                     | 4                      | 1000                  | 130                    | 61                      |                       |                        |
| 9-17                     | 5                      | 1500                  | 98                     | 44                      |                       |                        |
| 9-18                     | 5                      | 1600                  | 110                    | 56                      |                       |                        |
| 9-19                     | 7                      | 1300                  | 170                    | 38                      |                       |                        |
| 9-20                     | 6                      | 1600                  | 86                     | 63                      |                       |                        |
| 9-23                     | 3                      | 1600                  | 120                    | 75                      |                       |                        |
| 9-24                     | 4                      | 1500                  | -                      | 120                     |                       |                        |
| 9-25                     | 5                      | 1500                  | 160                    | 85                      |                       |                        |
| 9-26                     | 8                      | 1300                  | -                      | 34                      |                       |                        |
| 9-27                     | 6                      | 1400                  | 110                    | 63                      |                       |                        |
| 9-30                     | 5                      | 1400                  | 110                    | 66                      |                       |                        |
| 10-1                     | 5                      | 1700                  | -                      | 87                      |                       | 3.8                    |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>              | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits      | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Pasco (continued)</u> |                        |                       |                        |                         |                       |                        |
| 10-2                     | 4                      | 1600                  | 110                    | 71                      |                       |                        |
| 10-3                     | 5                      | 1200                  | 85                     | 60                      |                       |                        |
| 10-4                     | 4                      | 1300                  | 99                     | 84                      |                       |                        |
| 10-7                     | 7                      | 1600                  | -                      | 70                      |                       |                        |
| 10-8                     | 3                      | 1300                  | -                      | 77                      |                       |                        |
| 10-9                     | 6                      | 1600                  | -                      | 120                     |                       |                        |
| 10-10                    | 5                      | 1400                  | 120                    | 50                      |                       |                        |
| 10-11                    | 4                      | 1500                  | 970                    | 590                     |                       |                        |
| 10-14                    | 5                      | 1800                  | 130                    | 110                     |                       |                        |
| 10-15                    | 5                      | 1900                  | 170                    | 79                      |                       |                        |
| 10-16                    | 3                      | 1500                  | 94                     | 72                      |                       |                        |
| 10-18                    | 4                      | 1500                  | 100                    | 56                      |                       |                        |
| 10-21                    | -                      | 1500                  | 200                    | 110                     |                       |                        |
| 10-22                    | -                      | 1400                  | 250                    | 78                      |                       |                        |
| 10-23                    | -                      | 1200                  | 130                    | 69                      |                       |                        |
| 10-24                    | -                      | 1600                  | 160                    | 68                      |                       |                        |
| 10-25                    | -                      | 1300                  | 150                    | 82                      |                       |                        |
| 10-28                    | -                      | 1600                  | 200                    | 80                      |                       |                        |
| 10-29                    | -                      | 1400                  | 150                    | 88                      |                       |                        |
| 10-30                    | -                      | 1800                  | 190                    | 76                      |                       |                        |
| 10-31                    | -                      | 1600                  | 220                    | 98                      |                       |                        |
| 11-1                     | -                      | 1800                  | 130                    | 110                     |                       |                        |
| 11-4                     | -                      | 1500                  | 170                    | 58                      |                       |                        |
| 11-5                     | -                      | 980                   | 150                    | 94                      |                       |                        |
| 11-6                     | -                      | 1400                  | 160                    | 81                      |                       |                        |
| 11-7                     | 4                      | 1300                  | 150                    | 54                      |                       |                        |
| 11-11                    | < 7                    | 1500                  | 140                    | 72                      |                       |                        |
| 11-12                    | 3                      | 1600                  | 130                    | 73                      |                       |                        |
| 11-13                    | 3                      | 1500                  | 160                    | 76                      |                       |                        |
| 11-14                    | -                      | 1400                  | 170                    | 54                      |                       |                        |
| 11-15                    | -                      | 1700                  | 190                    | 120                     |                       |                        |
| 11-18                    | -                      | 1500                  | 200                    | 110                     |                       |                        |
| 11-19                    | -                      | 1200                  | 170                    | 79                      |                       |                        |
| 11-20                    | -                      | 1200                  | 190                    | 90                      |                       |                        |

< 4.1

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>              | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits         | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Pasco (continued)</u> |                        |                       |                        |                         |                       |                        |
| 11-21                    | -                      | 1500                  | 170                    | 100                     |                       |                        |
| 11-22                    | 3                      | 1700                  | 160                    | 100                     |                       |                        |
| 11-26                    | -                      | 1800                  | 130                    | 91                      |                       |                        |
| 11-27                    | -                      | 1700                  | 100                    | 72                      |                       |                        |
| 12-2                     | -                      | 1600                  | 190                    | 63                      |                       |                        |
| 12-3                     | -                      | 1600                  | 210                    | 110                     |                       |                        |
| 12-4                     | 8                      | 1500                  | 140                    | 69                      |                       |                        |
| 12-5                     | -                      | 1700                  | 250                    | 110                     |                       |                        |
| 12-6                     | -                      | 1700                  | 220                    | 100                     |                       |                        |
| 12-9                     | -                      | 1700                  | 210                    | 100                     |                       |                        |
| 12-10                    | -                      | 1700                  | 240                    | 93                      |                       |                        |
| 12-11                    | -                      | 1900                  | 240                    | 130                     |                       |                        |
| 12-12                    | -                      | 1000                  | 190                    | 84                      |                       |                        |
| 12-13                    | -                      | 1700                  | 160                    | 73                      |                       |                        |
| 12-16                    | 3                      | 1800                  | 260                    | 76                      |                       |                        |
| 12-17                    | -                      | 1600                  | 290                    | 85                      |                       |                        |
| 12-18                    | 3                      | 1500                  | 290                    | 60                      |                       |                        |
| 12-19                    | 3                      | 1800                  | 320                    | 99                      |                       |                        |
| 12-20                    | -                      | 1400                  | 300                    | 100                     |                       |                        |
| 12-23                    | 5                      | 1700                  | 280                    | 93                      |                       |                        |
| 12-26                    | 3                      | 1700                  | 210                    | 74                      |                       |                        |
| 12-27                    | 4                      | 1800                  | 260                    | 83                      |                       |                        |
| 12-30                    | 3                      | 1500                  | 210                    | 82                      |                       |                        |
| 12-31                    | -                      |                       |                        |                         |                       |                        |
| <u>West Richland</u>     |                        |                       |                        |                         |                       |                        |
| 9-12                     | 140                    | 1600                  | -                      | 130                     |                       |                        |
| 9-13                     | 120                    | 1700                  | -                      | 120                     |                       |                        |
| 9-14                     | 95                     | 1400                  | -                      | 100                     |                       |                        |
| 9-16                     | 48                     | 1600                  | -                      | 130                     |                       |                        |
| 9-17                     | 65                     | 1400                  | -                      | 100                     |                       |                        |
| 9-18                     | 43                     | 1900                  | -                      | 130                     |                       |                        |
| 9-19                     | 54                     | 1600                  | -                      | 110                     |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>                      | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|----------------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u>      | <u>3</u>               | <u>300</u>            | <u>80</u>              | <u>30</u>               | <u>100</u>            | <u>2</u>               |
| <u>West Richland (continued)</u> |                        |                       |                        |                         |                       |                        |
| 9-20                             | 52                     | 1900                  | -                      | 140                     |                       |                        |
| 9-23                             | 39                     | 1700                  | -                      | 110                     |                       |                        |
| 9-24                             | 31                     | 1800                  | -                      | 160                     |                       |                        |
| 9-25                             | 33                     |                       |                        |                         |                       |                        |
| 9-26                             | 26                     | 1200                  | -                      | 45                      |                       |                        |
| 9-27                             | 26                     | 1900                  | -                      | 110                     |                       |                        |
| 9-30                             | 29                     | 1800                  | -                      | 110                     |                       |                        |
| 10-1                             | 31                     | 1300                  | -                      | 100                     |                       |                        |
| 10-2                             |                        | 1500                  | -                      | 83                      |                       |                        |
| 10-3                             | 22                     | 1400                  | -                      | 93                      |                       |                        |
| 10-4                             | 17                     | 1600                  | -                      | 99                      |                       |                        |
| 10-7                             | 19                     | 1400                  | -                      | 110                     |                       |                        |
| 10-8                             | 18                     | 1400                  | -                      | 96                      |                       |                        |
| 10-9                             | 18                     | 1400                  | 110                    | 81                      |                       |                        |
| 10-10                            | 13                     | 1500                  | -                      | 110                     |                       |                        |
| 10-11                            | 17                     | 1600                  | -                      | 110                     |                       |                        |
| 10-14                            | 17                     | 1500                  | -                      | 98                      |                       |                        |
| 10-15                            | 19                     | 1800                  | -                      | 100                     |                       |                        |
| 10-16                            | 17                     | 1700                  | -                      | 130                     |                       |                        |
| 10-17                            | 17                     | 2000                  | 92                     | 150                     |                       |                        |
| 10-18                            | 16                     | 1700                  | -                      | 120                     |                       |                        |
| 10-21                            | 17                     | 1600                  | -                      | 140                     |                       |                        |
| 10-22                            | 6                      | 1700                  | -                      | 130                     |                       |                        |
| 10-23                            | 3                      | 1300                  | -                      | 150                     |                       |                        |
| 10-24                            | 3                      | 1900                  | -                      | 160                     |                       |                        |
| 10-25                            | 3                      | 1700                  | -                      | 130                     |                       |                        |
| 10-28                            | -                      | 2000                  | -                      | 140                     |                       |                        |
| 10-29                            | -                      | 1800                  | -                      | 150                     |                       |                        |
| 10-30                            | -                      | 1600                  | -                      | 140                     |                       |                        |
| 10-31                            | 4                      | 1500                  | -                      | 150                     |                       |                        |
| 11-1                             | < 4                    | 1700                  | -                      | 140                     |                       |                        |
| 11-4                             | -                      | 1500                  | -                      | 110                     |                       |                        |
| 11-5                             | < 4                    | 940                   | -                      | 120                     |                       |                        |
| 11-6                             | 4                      | 1400                  | -                      | 120                     |                       |                        |
| 11-7                             | < 16                   | 1300                  | -                      | 140                     |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>         | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|---------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |

West Richland (continued)

|       |      |      |   |     |  |  |
|-------|------|------|---|-----|--|--|
| 11-8  | 3    | 1500 | - | 170 |  |  |
| 11-11 | < 11 | 1700 | - | 170 |  |  |
| 11-12 | 11   | 1400 | - | 130 |  |  |
| 11-13 | 4    | 1500 | - | 140 |  |  |
| 11-14 | 5    | 1600 | - | 120 |  |  |
| 11-15 | 4    | 1700 | - | 170 |  |  |
| 11-18 | -    | 1600 | - | 170 |  |  |
| 11-19 | 3    | 1300 | - | 130 |  |  |
| 11-20 | 5    | 1400 | - | 120 |  |  |
| 11-21 | 3    | 1700 | - | 120 |  |  |
| 11-22 | 9    | 2200 | - | 130 |  |  |
| 11-26 | -    | 1800 | - | 130 |  |  |
| 11-27 | 10   | 1500 | - | 120 |  |  |
| 12-2  | 6    | 1500 | - | 93  |  |  |
| 12-5  | 10   | 1900 | - | 31  |  |  |
| 12-13 | -    | 1700 | - | 82  |  |  |
| 12-18 | 15   | 1500 | - | 94  |  |  |
| 12-27 | 11   | 940  | - | 63  |  |  |

Benton City

|      |    |     |   |   |   |     |
|------|----|-----|---|---|---|-----|
| 1-2  | 8  | 510 | - | - | - | 2.0 |
| 1-3  | 12 |     |   |   |   |     |
| 1-4  | 10 |     |   |   |   |     |
| 1-7  | 6  |     |   |   |   |     |
| 1-9  | 5  |     |   |   |   |     |
| 1-10 | 5  |     |   |   |   |     |
| 1-11 | 7  |     |   |   |   |     |
| 1-14 | 11 |     |   |   |   |     |
| 1-15 | 6  |     |   |   |   |     |
| 1-17 | 6  |     |   |   |   |     |
| 1-18 | 4  |     |   |   |   |     |
| 1-21 | 3  |     |   |   |   |     |
| 1-23 | 3  |     |   |   |   |     |
| 1-24 | 5  |     |   |   |   |     |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>             | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits     | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| Benton City (continued) |                        |                       |                        |                         |                       |                        |
| 1-25                    | 5                      |                       |                        |                         |                       |                        |
| 1-28                    | 4                      |                       |                        |                         |                       |                        |
| 1-31                    | 4                      |                       |                        |                         |                       |                        |
| 2-5                     | 10                     |                       |                        |                         |                       |                        |
| 2-6                     | 7                      |                       |                        |                         |                       |                        |
| 2-7                     | 6                      |                       |                        |                         |                       |                        |
| 2-8                     | 3                      |                       |                        |                         |                       |                        |
| 2-11                    | 3                      |                       |                        |                         |                       |                        |
| 2-12                    | -                      |                       |                        |                         |                       |                        |
| 2-14                    | 3                      |                       |                        |                         |                       |                        |
| 2-15                    | 4                      |                       |                        |                         |                       |                        |
| 2-18                    | 4                      |                       |                        |                         |                       |                        |
| 2-19                    | -                      |                       |                        |                         |                       |                        |
| 2-21                    | -                      |                       |                        |                         |                       |                        |
| 2-25                    | 3                      |                       |                        |                         |                       |                        |
| 2-26                    | -                      |                       |                        |                         |                       |                        |
| 2-27                    | -                      |                       |                        |                         |                       |                        |
| 3-1                     | -                      |                       |                        |                         |                       |                        |
| 3-4                     | -                      | 1500                  | -                      | 58                      | -                     | 2.4                    |
| 3-6                     | -                      |                       |                        |                         |                       |                        |
| 3-7                     | -                      |                       |                        |                         |                       |                        |
| 3-8                     | -                      |                       |                        |                         |                       |                        |
| 3-11                    | -                      |                       |                        |                         |                       |                        |
| 3-12                    | -                      |                       |                        |                         |                       |                        |
| 3-14                    | -                      |                       |                        |                         |                       |                        |
| 3-15                    | -                      |                       |                        |                         |                       |                        |
| 3-18                    | 3                      |                       |                        |                         |                       |                        |
| 3-20                    | 4                      |                       |                        |                         |                       |                        |
| 3-21                    | -                      |                       |                        |                         |                       |                        |
| 3-22                    | -                      | 1500                  | -                      | 50                      | -                     | 3.6                    |
| 3-25                    | 5                      |                       |                        |                         |                       |                        |
| 3-26                    | 8                      |                       |                        |                         |                       |                        |
| 3-27                    | -                      |                       |                        |                         |                       |                        |
| 3-28                    | -                      |                       |                        |                         |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>         | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|---------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |

Benton City (continued)

|      |   |      |  |    |  |  |
|------|---|------|--|----|--|--|
| 3-29 | - |      |  |    |  |  |
| 4-1  | - |      |  |    |  |  |
| 4-3  | - |      |  |    |  |  |
| 4-5  | - |      |  |    |  |  |
| 4-8  | - |      |  |    |  |  |
| 4-9  | - |      |  |    |  |  |
| 4-10 | 5 |      |  |    |  |  |
| 4-11 | - |      |  |    |  |  |
| 4-12 | - |      |  |    |  |  |
| 4-15 | - |      |  |    |  |  |
| 4-16 | - |      |  |    |  |  |
| 4-17 | - |      |  |    |  |  |
| 4-18 | - |      |  |    |  |  |
| 4-19 | - |      |  |    |  |  |
| 4-22 | - |      |  |    |  |  |
| 4-23 | - |      |  |    |  |  |
| 4-25 | - |      |  |    |  |  |
| 4-26 | - |      |  |    |  |  |
| 4-29 | - |      |  |    |  |  |
| 4-30 | - |      |  |    |  |  |
| 5-1  | - | 630  |  |    |  |  |
| 5-2  | - | 740  |  |    |  |  |
| 5-3  | - | 770  |  |    |  |  |
| 5-6  | - | 780  |  |    |  |  |
| 5-8  | - | 690  |  | 33 |  |  |
| 5-9  | - | 1300 |  | 33 |  |  |
| 5-10 | - | 1500 |  |    |  |  |
| 5-13 | - | 1200 |  |    |  |  |
| 5-14 | - | 1200 |  |    |  |  |
| 5-16 | - | 1200 |  | 30 |  |  |
| 5-17 | - | 1400 |  | 38 |  |  |
| 5-20 | 5 | 1100 |  | 40 |  |  |
| 5-21 | - | 1400 |  | 33 |  |  |
| 5-22 | - | 1100 |  |    |  |  |
| 5-23 | 3 | 1500 |  | 39 |  |  |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>                    | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits            | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Benton City (continued)</u> |                        |                       |                        |                         |                       |                        |
| 5-24                           | 5                      | 2300                  |                        | 110                     |                       |                        |
| 5-27                           | -                      | 1400                  | -                      | 49                      |                       |                        |
| 5-29                           | -                      | 1300                  | -                      | 39                      |                       |                        |
| 5-31                           | 3                      | 3700                  | 88                     | 150                     |                       |                        |
| 6-3                            | -                      | 1300                  | -                      | 74                      |                       |                        |
| 6-4                            | -                      | 1400                  | -                      | 120                     |                       |                        |
| 6-6                            | -                      | 1100                  | 210                    | 90                      |                       |                        |
| 6-7                            | -                      | 1100                  | 190                    | 53                      |                       |                        |
| 6-10                           | -                      | 1500                  | -                      | 100                     |                       |                        |
| 6-12                           | 3                      | 1500                  | -                      | 110                     |                       |                        |
| 6-14                           | -                      | 1300                  | -                      | 84                      |                       |                        |
| 6-17                           | 7                      | 1400                  | -                      | 66                      |                       |                        |
| 6-18                           | 6                      | 1300                  | -                      | 49                      |                       |                        |
| 6-20                           | 5                      | 1500                  | -                      | 58                      |                       |                        |
| 6-21                           | 6                      | 1300                  | -                      | 53                      |                       |                        |
| 6-24                           | 5                      | 1500                  | -                      | 50                      |                       |                        |
| 6-26                           | 4                      | 1500                  | -                      | 80                      |                       |                        |
| 6-27                           | 5                      | 1300                  | -                      | 68                      |                       |                        |
| 6-28                           | 23                     | 1800                  | 180                    | 99                      |                       |                        |
| 7-1                            | -                      | 1500                  | -                      | 75                      |                       |                        |
| 7-2                            | 6                      | 1400                  | -                      | 93                      |                       |                        |
| 7-3                            | 7                      | 1500                  | -                      | 110                     |                       |                        |
| 7-5                            | 7                      | 700                   | -                      | 64                      |                       |                        |
| 7-10                           | 3                      | 1300                  | -                      | 170                     |                       |                        |
| 7-12                           | -                      | 1100                  | -                      | 130                     |                       |                        |
| 7-15                           | -                      | 1200                  | -                      | 130                     |                       |                        |
| 7-16                           | 4                      | 1200                  | -                      | 100                     |                       |                        |
| 7-17                           | 5                      | 1200                  | -                      | 110                     |                       |                        |
| 7-19                           | -                      | 1300                  | -                      | 110                     |                       |                        |
| 7-22                           | -                      | 1200                  | -                      | 100                     |                       |                        |
| 7-23                           | 4                      | 1200                  | -                      | 110                     |                       |                        |
| 7-24                           | -                      | 1300                  | -                      | 110                     |                       |                        |
| 7-26                           | 7                      | 1500                  | -                      | 120                     |                       |                        |
| 7-29                           | 15                     | 1200                  | -                      | 110                     |                       |                        |
| 7-30                           | 16                     | 1800                  | -                      | 140                     |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>                    | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting<br>Limits            | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Benton City (continued)</u> |                        |                       |                        |                         |                       |                        |
| 7-31                           | 28                     | 1500                  | -                      | 110                     |                       |                        |
| 8-1                            | 17                     | 1300                  | -                      | 100                     |                       |                        |
| 8-2                            | -                      | 1100                  | -                      | 98                      |                       |                        |
| 8-5                            | 4                      | 1500                  | -                      | 68                      |                       |                        |
| 8-9                            | -                      | 1400                  | -                      | 51                      |                       |                        |
| 8-20                           | -                      | 1500                  | -                      | 97                      |                       |                        |
| 8-28                           | 3                      | 1500                  | -                      | 53                      |                       |                        |
| 9-4                            | 65                     | 1600                  | -                      | 92                      |                       |                        |
| 9-5                            | 120                    | 1600                  | -                      | 93                      |                       |                        |
| 9-6                            | 110                    | 1500                  | -                      | 88                      |                       |                        |
| 9-7                            | 97                     | 1200                  | -                      | 61                      |                       |                        |
| 9-8                            | 78                     | 1600                  | -                      | 86                      |                       |                        |
| 9-9                            | 69                     | 1500                  | -                      | 78                      |                       |                        |
| 9-10                           | 34                     | 1200                  | -                      | 81                      |                       |                        |
| 9-11                           | 29                     | 1600                  | -                      | 56                      |                       |                        |
| 9-12                           | 23                     | 1600                  | -                      | 82                      |                       |                        |
| 9-13                           | 20                     | 1500                  | -                      | 83                      |                       |                        |
| 9-14                           | 16                     | 1700                  | -                      | 68                      |                       |                        |
| 9-16                           | 25                     | 1400                  | -                      | 100                     |                       |                        |
| 9-17                           | 22                     | 1600                  | -                      | 94                      |                       |                        |
| 9-18                           | 20                     | 1000                  | -                      | 74                      |                       |                        |
| 9-19                           | 20                     | 1400                  | -                      | 100                     |                       |                        |
| 9-20                           | 19                     | 1700                  | -                      | 110                     |                       |                        |
| 9-23                           | 19                     | 1400                  | -                      | 89                      |                       |                        |
| 9-24                           | 14                     | 1700                  | -                      | 130                     |                       |                        |
| 9-25                           | 11                     |                       |                        |                         |                       |                        |
| 9-26                           | 9                      | 1300                  | -                      | 48                      |                       |                        |
| 9-27                           | 10                     | 1500                  | -                      | 89                      |                       |                        |
| 9-30                           | 11                     | 1600                  | -                      | 100                     |                       |                        |
| 10-1                           | 10                     | 1400                  | -                      | 93                      |                       |                        |
| 10-10                          | 10                     | 1600                  | -                      | 67                      |                       |                        |
| 10-17                          | 9                      | 1600                  | -                      | 91                      |                       |                        |
| 11-1                           | -                      | 1600                  | -                      | 87                      |                       |                        |
| 11-8                           | < 9                    | 1500                  | -                      | 35                      |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>             | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits        | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| Benton City (continued) |                        |                       |                        |                         |                       |                        |
| 11-13                   | 6                      | 1400                  | -                      | 47                      |                       |                        |
| 11-21                   | -                      | 1500                  | -                      | 97                      |                       |                        |
| 12-2                    | -                      | 1700                  | -                      | 120                     |                       |                        |
| 12-13                   | 3                      | 1400                  | -                      | 110                     |                       |                        |
| 12-17                   | 12                     | 1400                  | -                      | 140                     |                       |                        |
| 12-18                   | 4                      | 1800                  | -                      | 150                     |                       |                        |
| 12-27                   | 5                      | 1900                  | -                      | 160                     |                       |                        |
| Byers Landing           |                        |                       |                        |                         |                       |                        |
| 1-16                    | -                      | 1400                  | -                      | 31                      |                       |                        |
| 1-22                    | 4                      | 1800                  | -                      | 94                      |                       | 5.5                    |
| 1-30                    | 3                      | 1500                  | -                      | 76                      |                       |                        |
| 2-5                     | 4                      | 1500                  | -                      | 84                      |                       |                        |
| 2-13                    | 5                      | 1600                  | -                      | 110                     |                       |                        |
| 2-19                    | 4                      | 1600                  | -                      | 110                     |                       |                        |
| 2-27                    | -                      | 1400                  | -                      | 44                      |                       |                        |
| 3-5                     | -                      | 1600                  | -                      | 93                      |                       |                        |
| 3-13                    | 5                      | 1700                  | -                      | 110                     |                       | 13                     |
| 3-19                    | -                      | 1600                  | -                      | 82                      |                       |                        |
| 3-27                    | -                      | 1500                  | -                      | 120                     |                       |                        |
| 4-2                     | 4                      | 1500                  | -                      | 120                     |                       |                        |
| 4-10                    | -                      | 1400                  | -                      | 110                     |                       | 15                     |
| 4-16                    | 6                      | 1400                  | -                      | 95                      |                       |                        |
| 4-24                    | 18                     | 1500                  | -                      | 170                     |                       |                        |
| 4-30                    | 8                      |                       |                        |                         |                       |                        |
| 5-15                    | 8                      | 1400                  | -                      | 180                     |                       |                        |
| 5-22                    | 5                      | 1400                  | -                      | 120                     |                       | 81                     |
| 5-28                    | 12                     | 1500                  | -                      | 90                      |                       |                        |
| 6-5                     | 8                      | 1500                  | -                      | 100                     |                       |                        |
| 6-11                    | 46                     | 1400                  | -                      | 100                     |                       | 20                     |
| 6-19                    | 84                     | 1300                  | -                      | 100                     |                       |                        |
| 6-25                    | 27                     | 1500                  | -                      | 83                      |                       |                        |
| 7-3                     | 18                     | 1500                  | -                      | 91                      |                       |                        |
| 7-9                     | 7                      | 1300                  | -                      | 140                     |                       | < 3.9                  |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| Date                      | I <sup>131</sup> | K <sup>40</sup> | Zn <sup>65</sup> | Cs <sup>137</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|---------------------------|------------------|-----------------|------------------|-------------------|-----------------|------------------|
| Reporting Limits          | 3                | 300             | 80               | 30                | 100             | 2                |
| Byers Landing (continued) |                  |                 |                  |                   |                 |                  |
| 7-15                      | 8                | 1900            | -                | 160               |                 |                  |
| 7-23                      | 13               | 1400            | -                | 140               |                 |                  |
| 7-31                      | 9                | 1500            | -                | 87                |                 |                  |
| 8-6                       |                  | 1400            | -                |                   |                 |                  |
| 8-14                      | -                | 1200            | -                | -                 |                 | 6.2              |
| 8-20                      | -                | 1700            | -                | 71                |                 |                  |
| 8-28                      | 11               | 1400            | -                | 85                |                 |                  |
| 9-4                       | 10               | 1800            | -                | 140               |                 |                  |
| 9-11                      | 29               | 1400            | -                | 100               |                 | < 16             |
| 9-17                      | 37               | 1100            | -                | 79                |                 |                  |
| 9-25                      | 12               |                 | -                | 130               |                 |                  |
| 10-1                      | 4                | 1600            | -                | 89                |                 |                  |
| 10-9                      | 15               | 1500            | -                | 91                |                 | 5.5              |
| 10-15                     | 14               | 1600            | 93               | 170               |                 |                  |
| 10-23                     | 9                | 1500            | -                | 110               |                 |                  |
| 10-29                     | 9                | 1400            | -                | 100               |                 |                  |
| 11-6                      | 5                | 1300            | -                | 37                |                 |                  |
| 11-12                     | 9                | 1500            | -                | 73                |                 | 3.9              |
| 11-20                     | -                | 1800            | -                | 80                |                 |                  |
| Mesa                      |                  |                 |                  |                   |                 |                  |
| 1-2                       | 8                | 530             | -                | 59                |                 |                  |
| 1-8                       | 6                | 1500            | -                | 54                |                 |                  |
| 1-16                      | 6                | 1500            | -                | 72                |                 |                  |
| 1-22                      | 4                | 1800            | -                | 94                |                 |                  |
| 1-30                      | 5                | 1400            | -                | 43                |                 |                  |
| 2-5                       | 7                | 1500            | -                | 38                |                 |                  |
| 2-13                      | 7                | 1400            | -                | 40                |                 |                  |
| 2-19                      | 3                | 1800            | -                | 34                |                 |                  |
| 2-27                      | -                | 1400            | -                | -                 |                 |                  |
| 3-5                       | -                | 1600            | -                | -                 |                 |                  |
| 3-13                      | 4                | 1700            | -                | 61                |                 |                  |
| 3-19                      | -                | 1600            | -                | -                 |                 |                  |

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

APPENDIX C  
TABLE I (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>      | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| Mesa (continued) |                        |                       |                        |                         |                       |                        |
| 3-27             | 3                      | 1500                  | -                      | 56                      | -                     |                        |
| 4-2              | -                      | 1700                  | -                      | 39                      | -                     |                        |
| 4-10             | -                      | 1200                  | -                      | 68                      | -                     | 8.7                    |
| 4-16             | -                      | 1400                  | -                      | 47                      | -                     |                        |
| 4-24             | 3                      | 1500                  | -                      | 85                      | -                     |                        |
| 4-30             | 4                      |                       |                        |                         |                       |                        |
| 5-7              | 7                      | 1300                  |                        | 120                     | -                     |                        |
| 5-15             | -                      | 1500                  |                        | 55                      | -                     | 17                     |
| 5-22             | -                      | 1400                  |                        | 80                      | -                     |                        |
| 5-28             | -                      | 1400                  | -                      | 59                      | -                     |                        |
| 6-5              | 4                      | 1500                  | -                      | 66                      | -                     | 7.3                    |
| 6-11             | 5                      | 1400                  | -                      | 64                      | -                     |                        |
| 6-19             | 16                     | 1800                  | -                      | 70                      | -                     |                        |
| 6-25             | 32                     | 1400                  | -                      | -                       | -                     |                        |
| 7-1              | 28                     | 1900                  | -                      | 47                      | -                     |                        |
| 7-9              | 15                     | 1300                  | -                      | 73                      | -                     | 5.5                    |
| 7-15             | 9                      | 1300                  | -                      | 59                      | -                     |                        |
| 7-23             | 5                      | 1700                  | -                      | 140                     | -                     |                        |
| 7-31             | 9                      | 1400                  | -                      | 76                      | -                     |                        |
| 8-6              | -                      | 1400                  | -                      | -                       | -                     |                        |
| 8-14             | -                      | 1300                  | -                      | 50                      | -                     | 4.5                    |
| 8-20             | -                      | 1800                  | -                      | 68                      | -                     |                        |
| 8-28             | -                      | 2000                  | -                      | 110                     | -                     |                        |
| 9-5              | 4                      | 1500                  | -                      | 58                      | -                     |                        |
| 9-11             | 34                     | 2500                  | 140                    | 61                      | -                     | < 7.7                  |
| 9-19             | 19                     | 1200                  | -                      | -                       | -                     |                        |
| 9-25             | 17                     | 1600                  | -                      | 35                      | -                     |                        |
| 10-1             | 8                      | 1900                  | -                      | 94                      | -                     |                        |
| 10-9             | 8                      | 1600                  | -                      | 49                      | -                     | 3.5                    |
| 10-15            | 4                      | 1700                  | -                      | 67                      | -                     |                        |
| 10-23            | -                      | 1800                  | -                      | 86                      | -                     |                        |
| 10-29            | -                      | 1500                  | 81                     | 120                     | -                     |                        |
| 11-6             | -                      | 1500                  | -                      | 95                      | -                     |                        |
| 11-12            | 14                     | 1600                  | -                      | 100                     | -                     | 11                     |
| 11-20            | -                      | 1700                  | -                      | 89                      | -                     |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| Date             | I <sup>131</sup> | K <sup>40</sup> | Zn <sup>65</sup> | Cs <sup>137</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|------------------|------------------|-----------------|------------------|-------------------|-----------------|------------------|
| Reporting Limits | 3                | 300             | 80               | 30                | 100             | 2                |
| <u>El托pia</u>    |                  |                 |                  |                   |                 |                  |
| 1-2              | -                | -               | -                | -                 | -               | -                |
| 1-8              | 3                | 1200            | -                | -                 | -               | 2.1              |
| 1-16             | 4                | 1300            | -                | -                 | -               | -                |
| 1-22             | 4                | 1500            | -                | -                 | -               | -                |
| 1-30             | 4                | 1300            | -                | -                 | -               | -                |
| 2-5              | 6                | 1400            | -                | -                 | -               | -                |
| 2-13             | 3                | 1500            | -                | -                 | -               | -                |
| 2-19             | -                | 1500            | -                | -                 | -               | -                |
| 2-27             | -                | 1400            | -                | -                 | -               | -                |
| 3-13             | -                | 1500            | -                | -                 | -               | -                |
| 3-19             | -                | 1400            | -                | -                 | -               | -                |
| 3-27             | -                | 1400            | -                | -                 | -               | -                |
| 4-2              | -                | 1300            | -                | -                 | -               | -                |
| 4-10             | -                | 1200            | -                | -                 | -               | -                |
| 4-16             | -                | 1400            | -                | -                 | -               | -                |
| 4-24             | -                | 1100            | -                | -                 | -               | -                |
| 4-30             | -                | -               | -                | -                 | -               | -                |
| 5-7              | 4                | 920             | 53               | -                 | 7.6             | -                |
| 5-15             | 10               | 1400            | 110              | -                 | -               | -                |
| 5-22             | 7                | 1400            | 99               | -                 | -               | -                |
| 5-28             | 5                | 1300            | 100              | -                 | -               | -                |
| 6-5              | 4                | 1500            | 110              | -                 | -               | -                |
| 6-11             | 6                | 1200            | 120              | -                 | -               | -                |
| 6-19             | 14               | 1200            | 88               | -                 | -               | -                |
| 6-25             | 11               | 1300            | 68               | -                 | -               | -                |
| 7-1              | 16               | 1700            | 58               | -                 | -               | -                |
| 7-15             | 8                | 1500            | 90               | -                 | -               | -                |
| 7-23             | 7                | 1400            | 120              | -                 | -               | -                |
| 8-6              | -                | 1200            | 30               | 6.2               | -               | -                |
| 8-14             | -                | 1200            | 65               | -                 | -               | -                |
| 8-20             | -                | 1600            | 33               | -                 | -               | -                |
| 8-28             | 12               | 1700            | 91               | -                 | -               | -                |
| 9-4              | 10               | 1600            | 79               | < 3.6             | -               | -                |
| 9-11             | 10               | 1600            | 56               | -                 | -               | -                |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>              | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits         | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |
| <u>Eltopia</u>           |                        |                       |                        |                         |                       |                        |
| 9-19                     | 7                      | 1600                  | 80                     | 76                      |                       |                        |
| 9-25                     | 8                      | 1500                  | -                      | 60                      |                       |                        |
| 10-1                     | 6                      | 1200                  | -                      | 63                      |                       |                        |
| 10-9                     | 5                      | 1700                  | -                      | 64                      |                       | 4.5                    |
| 10-15                    | -                      | 1800                  | -                      | 73                      |                       |                        |
| 10-23                    | -                      | 1400                  | -                      | 50                      |                       |                        |
| 10-29                    | 4                      | 1400                  | -                      | 58                      |                       |                        |
| 11-6                     | -                      | 1600                  | -                      | 42                      |                       |                        |
| 11-20                    | 8                      | 1600                  | -                      | 49                      |                       | 9.7                    |
| 11-26                    | 12                     | 1700                  | -                      | 54                      |                       |                        |
| 12-4                     | 4                      | 1600                  | -                      | 42                      |                       |                        |
| 12-13                    | 4                      | 1800                  | -                      | 87                      |                       | < 15                   |
| 12-26                    | -                      | 1800                  | -                      | 86                      |                       |                        |
| <u>Milk Shed Samples</u> |                        |                       |                        |                         |                       |                        |
| <u>Columbia Basin</u>    |                        |                       |                        |                         |                       |                        |
| 1-9                      | 5                      | 1300                  | -                      | -                       | -                     | 3.6                    |
| 1-23                     | 4                      |                       |                        |                         |                       |                        |
| 2-7                      | -                      | 1500                  | -                      | 66                      | -                     | 9.5                    |
| 2-20                     | 4                      |                       |                        |                         |                       |                        |
| 3-6                      | -                      | 1200                  | -                      | 35                      | -                     | 24                     |
| 3-21                     | 4                      |                       |                        |                         |                       |                        |
| 4-3                      | -                      | 1300                  | -                      | 45                      | -                     | 5.2                    |
| 4-17                     | -                      |                       |                        |                         |                       |                        |
| 5-1                      | -                      | 780                   |                        | 50                      |                       |                        |
| 5-15                     | 3                      | 1300                  |                        | 90                      |                       | 18                     |
| 5-29                     | -                      | 1600                  | -                      | 91                      |                       |                        |
| 6-12                     | 4                      | 1500                  | 120                    | 60                      |                       |                        |
| 6-25                     | 11                     | 1300                  | -                      | 75                      |                       |                        |
| 7-10                     | 5                      | 1000                  | 100                    | 120                     |                       |                        |
| 7-24                     | -                      | 1500                  | -                      | 130                     |                       | 16                     |
| 8-7                      | -                      | 1200                  | -                      | 83                      |                       |                        |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| Date                | I <sup>131</sup> | K <sup>40</sup> | Zn <sup>65</sup> | Cs <sup>137</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|---------------------|------------------|-----------------|------------------|-------------------|-----------------|------------------|
| Reporting<br>Limits | 3                | 300             | 80               | 30                | 100             | 2                |

Milk Shed Samples

Columbia Basin (continued)

|       |    |      |     |     |  |       |
|-------|----|------|-----|-----|--|-------|
| 8-21  | -  | 1300 | 140 | 73  |  |       |
| 9-5   | -  | 1300 | -   | 78  |  |       |
| 9-8   | 18 | 1500 | 140 | 63  |  | 6.5   |
| 9-17  | 19 | 1200 | -   | 58  |  |       |
| 10-2  | 6  | 1200 | 88  | 69  |  |       |
| 10-17 | -  | 1700 | 120 | 62  |  | < 6.6 |
| 10-30 | -  | 1500 | 170 | 86  |  |       |
| 11-13 | 6  | 1400 | 130 | 100 |  |       |
| 12-13 | -  | 1700 | -   | 120 |  | 9.8   |
| 12-31 | -  |      |     |     |  |       |

Prosser, Benton City

|      |     |      |   |     |   |       |
|------|-----|------|---|-----|---|-------|
| 1-9  | -   | 1300 | - | -   | - | 4.1   |
| 1-23 | 3   |      |   |     |   |       |
| 2-6  | -   | 1500 | - | 56  | - | 5.8   |
| 2-20 | < 3 |      |   |     |   |       |
| 3-6  | -   | 1400 | - | 57  | - | 16    |
| 3-20 | 6   | 1700 | - | 52  | - |       |
| 4-3  | -   | 1300 | - | 38  | - | 6.8   |
| 4-17 | 3   |      |   |     |   |       |
| 5-1  | -   | 550  | - | 55  |   |       |
| 5-15 | -   | 1300 | - | 130 |   |       |
| 5-29 | -   | 1400 | - | 76  |   | 20    |
| 6-13 | -   | 1700 | - | 130 |   |       |
| 6-26 | 3   | 1300 | - | 49  |   |       |
| 7-10 | -   | 1400 | - | 160 |   |       |
| 7-24 | -   | 1400 | - | 150 |   | 16    |
| 8-7  | -   | 1400 | - | 77  |   |       |
| 8-21 | -   | 1300 | - | 100 |   |       |
| 9-5  | 3   | 1300 | - | 60  |   | < 7.5 |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| Date             | I <sup>131</sup> | K <sup>40</sup> | Zn <sup>65</sup> | Cs <sup>137</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|------------------|------------------|-----------------|------------------|-------------------|-----------------|------------------|
| Reporting Limits | 3                | 300             | 80               | 30                | 100             | 2                |

Milk Shed Samples

Prosser, Benton City (continued)

|       |    |      |     |     |  |      |
|-------|----|------|-----|-----|--|------|
| 9-7   | 59 | 1700 | -   | 30  |  |      |
| 9-17  | 20 | 1600 | -   | 68  |  |      |
| 10-2  | 5  | 1500 | -   | 100 |  |      |
| 10-16 | 5  | 1600 | -   | 89  |  |      |
| 10-30 | 6  | 1500 | 140 | 83  |  | < 13 |
| 11-13 | -  | 1500 | -   | 110 |  |      |
| 12-13 | 3  | 1500 | -   | 81  |  | 7.3  |
| 12-27 | 5  | 1500 | -   | 91  |  |      |

Local Purchase - Commercial Milk

Brand A

|       |    |      |     |     |   |      |
|-------|----|------|-----|-----|---|------|
| 1-7   | 3  | 1300 | -   | 33  | - | 7.1  |
| 1-25  | -  |      |     |     |   |      |
| 2-1   | -  | 1400 | -   | 50  | - | 6.6  |
| 2-15  | -  |      |     |     |   |      |
| 3-12  | -  | 1400 | -   | 44  | - | 5.4  |
| 3-22  | -  |      |     |     |   |      |
| 4-8   | -  | 1300 | -   | 57  | - | 13   |
| 4-22  | -  |      |     |     |   |      |
| 5-9   | -  | 1300 |     | 130 | - | 15   |
| 5-27  | -  | 1300 | -   | 100 |   |      |
| 6-4   | 3  | 1400 | 86  | 110 |   | 18   |
| 6-11  | -  | 1100 | -   | 110 |   |      |
| 7-9   | 3  | 1200 | 120 | 86  |   | 5.9  |
| 7-23  | 7  | 1300 | -   | 140 |   |      |
| 8-5   | 3  | 1300 | -   | 110 | - | 15   |
| 8-12  | -  | 1200 | -   | 79  |   |      |
| 9-16  | 12 | 1200 | -   | 51  |   |      |
| 9-26  | 4  | 1300 | -   | 45  |   |      |
| 10-15 | 3  | 1400 | -   | 78  |   | < 11 |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| <u>Date</u>      | <u>I<sup>131</sup></u> | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|------------------|------------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|
| Reporting Limits | 3                      | 300                   | 80                     | 30                      | 100                   | 2                      |

Local Purchase - Commercial Milk

Brand A (continued)

|       |   |      |   |     |  |       |
|-------|---|------|---|-----|--|-------|
| 11-21 | 5 | 1700 | - | 120 |  |       |
| 12-10 | - | 1600 | - | 78  |  |       |
| 12-30 | - |      |   |     |  | < 2.6 |

Brand F

|       |    |      |   |     |   |     |
|-------|----|------|---|-----|---|-----|
| 1-4   | 4  |      |   |     |   |     |
| 1-7   | -  | 1400 | - | -   | - | 5.4 |
| 1-15  | 3  |      |   |     |   |     |
| 1-25  | 3  |      |   |     |   |     |
| 2-1   | 10 | 1300 | - | 45  | - | 6.4 |
| 2-13  | -  |      |   |     |   |     |
| 2-26  | -  |      |   |     |   |     |
| 3-7   | -  |      |   |     |   |     |
| 3-12  | -  | 1500 | - | 49  | - | 4.7 |
| 3-22  | -  |      |   |     |   |     |
| 3-28  | -  |      |   |     |   |     |
| 4-8   | -  | 1400 | - | 31  | - | 5.0 |
| 4-22  | -  |      |   |     |   |     |
| 5-9   | -  | 1500 | - | 85  | - | 18  |
| 5-27  | -  | 1200 | - | 62  |   |     |
| 6-4   | -  | 1400 | - | 70  |   | 8.7 |
| 6-11  | -  | 1400 | - | 47  |   |     |
| 7-9   | -  | 1100 | - | 110 |   |     |
| 7-23  | 4  | 1500 | - | 140 |   | 12  |
| 8-5   | -  | 1200 | - | 100 | - | 11  |
| 8-12  | -  | 1300 | - | 100 |   |     |
| 9-16  | 8  | 1100 | - | 71  |   |     |
| 9-26  | -  | 1200 | - | 43  |   |     |
| 10-9  | 3  | 1700 | - | 110 |   |     |
| 10-15 | 3  | 1500 | - | 85  |   | 12  |
| 11-7  | -  | 1500 | - | 44  |   | 8.0 |

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

APPENDIX C  
TABLE 1 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN MILK - 1963

Units of pc/l

| Date             | I <sup>131</sup> | K <sup>40</sup> | Zn <sup>65</sup> | Cs <sup>137</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|------------------|------------------|-----------------|------------------|-------------------|-----------------|------------------|
| Reporting Limits | 3                | 300             | 80               | 30                | 100             | 2                |

Local Purchase - Commercial Milk

Brand F (continued)

|       |   |      |   |    |  |     |
|-------|---|------|---|----|--|-----|
| 11-21 | - | 1700 | - | 80 |  |     |
| 12-10 | - | 1500 | - | 80 |  |     |
| 12-30 | - | 1100 | - | 71 |  | 5.5 |

Brand H

|       |      |      |   |     |   |     |
|-------|------|------|---|-----|---|-----|
| 1-7   | 4    | 1300 | - | 73  | - | 9.7 |
| 1-25  | 4    |      |   |     |   |     |
| 2-1   | 9    | 1100 | - | 58  | - | 10  |
| 2-15  | -    |      |   |     |   |     |
| 3-12  | 5    | 1300 | - | 82  | - | 23  |
| 3-22  | -    |      |   |     |   |     |
| 4-8   | -    | 1600 | - | 120 | - | 19  |
| 4-22  | -    |      |   |     |   |     |
| 5-9   | -    | 1300 |   | 190 | - | 29  |
| 5-27  | -    | 1100 | - | 170 |   |     |
| 6-4   | -    | 1200 | - | 190 |   | 26  |
| 6-11  | -    | 1200 | - | 140 |   |     |
| 7-9   | -    | 1100 | - | 160 |   | 19  |
| 7-23  | -    | 1600 | - | 300 |   |     |
| 8-5   | -    | 1300 | - | 270 | - | 36  |
| 8-12  | -    | 1100 | - | 220 |   |     |
| 9-16  | -    | 1400 | - | 260 |   |     |
| 9-26  | 4    | 1100 | - | 260 |   |     |
| 10-15 | -    | 1500 | - | 240 |   | 11  |
| 10-22 | -    | 1600 | - | 260 |   |     |
| 11-7  | < 17 | 1500 | - | 200 |   | 24  |
| 11-21 | 3    | 1500 | - | 210 |   |     |
| 12-10 | -    | 1500 | - | 160 |   |     |
| 12-30 | 5    | 1100 | - | 160 |   | 17  |

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

APPENDIX C  
TABLE 2

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| Date                                 | K <sup>40</sup> | Zn <sup>65</sup> | Zr <sup>95</sup> -<br>Nb <sup>95</sup> | Cs <sup>137</sup> | Ru <sup>103+</sup><br>Ru <sup>106</sup> | I <sup>131</sup> | Ce <sup>144</sup> -<br>Pr <sup>144</sup> | P <sup>32</sup> | Sr <sup>90</sup> |
|--------------------------------------|-----------------|------------------|--|-------------------|---|------------------|--|-----------------|------------------|
| Reporting<br>Limits                  | 0.3             | 0.08             | 0.05                                   | 0.03              | 0.5                                     | 0.05             | 0.5                                      | 0.1             | 0.002            |
| <u>Riverview Irrigation District</u> |                 |                  |  |                   |   |                  |  |                 |                  |
| 4-2                                  | 17              | 0.21             | 35                                     | 1.1               | 22                                      | -                | -  | 0.42            |                  |
| 4-10                                 | 6.2             | 0.19             | 12                                     | 1.1               | 5.9                                     | -                | 1.5                                      | 0.32            |                  |
| 4-16                                 | 6.4             | -                | 9.6                                    | 0.75              | 6.3                                     | 0.06             | 3.3                                      | 0.20            |                  |
| 4-24                                 | 10              | 0.42             | 27                                     | 2.6               | 12                                      | -                | -  | 0.43            |                  |
| 4-30                                 | 26              | 1.4              | 50                                     | 6.4               | 15                                      | -                | -  |                 |                  |
| 5-15                                 | 7.6             |                  | 28                                     | 0.78              | 12                                      | -                | 16                                       |                 |                  |
| 5-22                                 | 9.3             |                  | 21                                     | -                 | 9.1                                     | -                | 5.2                                      | 0.19            |                  |
| 5-28                                 | 6.9             |                  | 1.3                                    | -                 | 2.2                                     | 0.12             | 3.4                                      | 0.18            |                  |
| 6-5                                  | 12              | -                | 66                                     | 1.5               | 40                                      | -                | 23                                       | 0.29            |                  |
| 6-11                                 | 6.4             | 0.25             | 10                                     | 0.22              | 6.8                                     | 0.38             | 9.1                                      | 0.30            |                  |
| 6-19                                 | 8.2             | -                | 21                                     | 0.67              | 14                                      | -                | 27                                       | -               |                  |
| 6-25                                 | 9.1             | 0.71             | 13                                     | 0.78              | 2.6                                     | -                | 19                                       | 0.19            |                  |
| 7-1                                  | 9.7             | 0.82             | 21                                     | 1.2               | 7.5                                     | -                | 36                                       | 0.28            |                  |
| 7-9                                  | 20              | -                | 6.7                                    | 0.14              | 11                                      | -                | 4.4                                      | 0.19            | < 0.028          |
| 7-15                                 | 14              | -                | 5.2                                    | 0.38              | 5.6                                     | 0.05             | 11                                       | 0.25            |                  |
| 7-23                                 | 16              |                  | 4.9                                    | 0.34              | 2.7                                     | 0.33             | 8.8                                      | 0.78            |                  |
| 7-31                                 | 8.7             | 1.0              | 9.4                                    | 0.73              | 3.6                                     | -                | 15                                       |                 |                  |
| 8-6                                  | 19              | 2.6              | 4.3                                    | 0.71              | -                                       | 0.05             | 29                                       | 0.70            | 0.161            |
| 8-14                                 | 25              | 4.6              | 4.8                                    | 0.89              | -                                       | 0.66             | 12                                       | 2.2             |                  |
| 8-20                                 | 17              | 2.2              | 15                                     | 3.1               | 7.8                                     | -                | 43                                       | 4.6             |                  |
| 8-28                                 | 14              | 1.1              | 10                                     | 2.2               | 9.3                                     | -                | 32                                       | 3.9             |                  |
| 9-3                                  | 14              | 1.3              | 8.6                                    | 2.1               | 11                                      | 2.7              | 19                                       |                 |                  |
| 9-5                                  | 9.0             | 1.2              | 16                                     | 3.6               | 9.7                                     | 0.50             | 46                                       | 4.2             |                  |
| 9-9                                  | 15              | 0.71             | 8.7                                    | 1.9               | 9.1                                     | 0.79             | 25                                       |                 |                  |
| 9-19                                 | 6.6             | 0.42             | 4.7                                    | 0.88              | 10                                      | 0.90             | 31                                       |                 |                  |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                                      | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <b>Reporting<br/>Limits</b>                      | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <b>Riverview Irrigation District (continued)</b> |                       |                        |   |                         |   |                        |   |                       |                        |
| 9-25   | 26                    | 0.74                   | 3.9   | 1.1                     | 2.1   | 0.32                   | 12  | 97                    |                        |
| 10-1   | 19                    | -                      | -   | 0.67                    | 4.0   | 0.39                   | 6.7   | 0.56                  | 0.057                  |
| 10-9   | 10                    | -                      | 2.9   | 0.83                    | 5.6   | 0.29                   | 15  | 700                   |                        |
| 10-15  | 16                    | 2.4                    | 8.3   | 2.3                     | 11  | 0.37                   | 27  |                       |                        |
| 10-23  | 11                    | 1.2                    | 0.85  | 0.50                    | -   | 0.12                   | 12  | 0.44                  |                        |
| 10-29  | 10                    | 1.4                    | 3.8   | 1.2                     | 3.4   | 1.3                    | 8.7   | 0.55                  |                        |
| 11-6   | 9.9                   | -                      | 1.5   | 0.39                    | 6.0   | -                      | 0.54  | 0.13                  | 0.091                  |
| <b>Fingold</b>                                   |                       |                        |   |                         |   |                        |   |                       |                        |
| 6-11   | 18                    | 0.14                   | 23  | 0.43                    | 18  | -                      | 11  | 0.81                  |                        |
| 6-19   | 7.8                   | 0.39                   | 6.3   | 0.21                    | 5.5   | 0.18                   | 12  | 0.46                  |                        |
| 6-25   | 6.4                   | -                      | 5.6   | 0.16                    | 6.2   | 0.11                   | 7.7   | 0.77                  |                        |
| 7-3  | 6.7                   | -                      | 7.9   | 0.34                    | 9.5   | -                      | 9.8   | 0.82                  |                        |
| 7-9  | 9.3                   | 0.20                   | 21  | 1.3                     | 11  | -                      | 19  | 0.77                  | 0.068                  |
| 7-15   | 9.6                   | 0.32                   | 19  | 1.4                     | 10  | -                      | 30  | 2.0                   |                        |
| 7-23   | 12                    |                        | 9.0   | 0.55                    | 7.1   | 0.07                   | 18  | 1.4                   |                        |
| 7-31   | 9.6                   |                        | 4.1   | 0.25                    | 5.5   | -                      | 11  |                       |                        |
| 8-6  | 9.4                   |                        | 2.6   | -                       | 12  | -                      | 21  | 3.1                   | 0.06                   |
| 8-14   | 29                    | 21                     | 18  | 3.5                     | -   | -                      | 41  | 4.0                   |                        |
| 8-20   | 14                    | 2.9                    | 7.0   | 1.5                     | 2.7   | 0.46                   | 26  | 7.4                   |                        |
| 8-28   | 13                    | 1.5                    | 7.5   | 1.8                     | 4.6   | 0.12                   | 23  | -                     |                        |
| 9-3  | 11                    | 3.5                    | 7.3   | 0.37                    | 7.2   | 1.3                    | 14  | 3.4                   |                        |
| 9-4  | 11                    | 1.4                    | 8.6   | 1.2                     | 4.3   | 0.20                   | 20  | 3.7                   | 0.12                   |
| 9-5  | 12                    | -                      | 3.9   | 0.67                    | 9.5   | 0.50                   | 13  |                       |                        |
| 9-6  | 12                    | 1.9                    | 5.1   | 1.3                     | 3.9   | 0.08                   | 16  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Pu<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Ringold (continued)</u>  |                       |                        |   |                         |   |                        |   |                       |                        |
| 9-7                         | 15                    | 1.7                    | 4.3   | 1.1                     | 4.3   | 0.46                   | 14  |                       |                        |
| 9-8                         | 6.2                   | 0.31                   | 1.3   | 0.45                    | 5.3   | 0.43                   | 3.9   |                       |                        |
| 9-9                         | 13                    | 2.2                    | 5.5   | 1.3                     | 3.8   | 0.47                   | 21  |                       |                        |
| 9-10                        | 9.9                   | 1.0                    | 3.8   | 0.86                    | 3.2   | 0.13                   | 26  |                       |                        |
| 9-11                        | 14                    |                        | 3.9   | 0.37                    | 11  | 0.37                   | 13  |                       |                        |
| 9-12                        | 9.3                   | 1.5                    | 1.9   | 0.49                    | 2.2   | 0.26                   | 7.1   |                       |                        |
| 9-13                        | 11                    | 1.3                    | 2.5   | 0.45                    | 3.9   | -                      | 9.0   |                       |                        |
| 9-16                        | 6.8                   | 1.2                    | 3.6   | 0.90                    | 2.8   | 0.08                   | 30  |                       |                        |
| 9-19                        | 9.3                   | 1.1                    | 2.5   | 0.61                    | 2.0   | 0.15                   | 21  |                       |                        |
| 9-20                        | 11                    | -                      | 3.0   | 0.45                    | 9.0   | 0.10                   | 33  |                       |                        |
| 9-23                        | 19                    | 0.86                   | 3.4   | 0.76                    | 4.7   | 0.32                   | 19  |                       |                        |
| 9-24                        | 18                    | 0.64                   | 3.8   | 1.1                     | 3.5   | 0.41                   | 18  |                       |                        |
| 9-25                        | 12                    | 0.59                   | 5.3   | 1.3                     | 7.2   | 0.47                   | 28  | 5.0                   |                        |
| 9-26                        | 11                    | 1.5                    | 2.9   | 0.85                    | 2.6   | 0.18                   | 13  |                       |                        |
| 9-27                        | 12                    | 3.2                    | 2.2   | 1.2                     | -   | 0.32                   | 23  |                       |                        |
| 9-30                        |                       |                        | 2.5   | 0.64                    | 4.1   | 0.13                   | 18  | 4.3                   |                        |
| 10-1                        | 14                    |                        | 3.9   | 0.83                    | 14  | 0.18                   | 13  | 5.1                   | 0.069                  |
| 10-9                        | 12                    |                        | 6.0   | 1.6                     | 13  | 0.05                   | 24  | 8.4                   |                        |
| 10-15                       | 18                    |                        | 4.8   | 1.4                     | 15  | 0.63                   | 24  | 3.0                   |                        |
| 10-23                       | 16                    | 1.7                    | 5.8   | 1.9                     | 10  | 0.11                   | 21  | 5.2                   |                        |
| 10-29                       | 14                    | 2.1                    | 8.8   | 3.6                     | 19  | -                      | 26  | 1.4                   |                        |
| 11-6                        | 7.8                   | 0.63                   | 2.7   | 1.1                     | 7.0   | 0.17                   | 11  | 1.0                   | 0.37                   |
| 11-12                       | 11                    | 2.3                    | 5.5   | 2.3                     | 11  | 0.36                   | 26  |                       |                        |
| 11-20                       | 11                    | 2.6                    |   |                         |   |                        |   |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Pasco</u>                |                       |                        |   |                         |   |                        |   |                       |                        |
| 4-30                        | 6.8                   |                        | 19  | 1.1                     | 6.9   | -                      | 15  |                       |                        |
| 5-1                         | 7.6                   |                        | 16  | 0.51                    | 6.4   | -                      | 14  |                       |                        |
| 5-2                         | 8.1                   |                        | 38  | 1.1                     | 14  | -                      | 7.5   |                       |                        |
| 5-3                         | 8.4                   |                        | 19  | 0.82                    | 5.9   | -                      | 15  |                       |                        |
| 5-6                         | 6.1                   |                        | 14  | 1.2                     | 4.4   | -                      | 14  |                       |                        |
| 5-7                         | 6.5                   |                        | 45  | 2.8                     | 13  | -                      | 34  |                       |                        |
| 5-8                         | 6.8                   |                        | 20  | 1.2                     | 6.0   | -                      | 13  |                       |                        |
| 5-9                         | 6.8                   |                        | 12  | 1.4                     | 4.7   | -                      | 7.2   |                       |                        |
| 5-10                        | 6.1                   |                        | 14  | 1.1                     | 4.7   | -                      | 14  |                       |                        |
| 5-13                        | 6.6                   |                        | 17  | 0.98                    | 6.6   | -                      | 6.2   |                       |                        |
| 5-14                        | 7.2                   |                        | 17  | 1.9                     | 6.1   | -                      | 11  |                       |                        |
| 5-15                        | 8.3                   |                        | 22  | 1.4                     | 7.2   | -                      | 15  |                       |                        |
| 5-16                        | 7.3                   |                        | 29  | 2.0                     | 9.6   | -                      | 19  |                       |                        |
| 5-17                        | 7.0                   |                        | 12  | 0.37                    | 4.2   | -                      | 8.0   |                       |                        |
| 5-20                        | 9.2                   |                        | 13  | 1.1                     | 4.9   | -                      | 11  |                       |                        |
| 5-21                        | 7.4                   |                        | 17  | 2.2                     | 6.3   | -                      | 11  |                       |                        |
| 5-22                        | 10                    |                        | 18  | 0.76                    | 6.0   | -                      | 9.1   |                       |                        |
| 5-23                        | 7.6                   |                        | 12  | 0.73                    | 4.6   | -                      | 7.0   |                       |                        |
| 5-24                        | 8.1                   |                        | 6.7   | 0.32                    | 2.8   | -                      | 4.6   |                       |                        |
| 5-27                        | 9.9                   |                        | 15  | -                       | 5.1   | -                      | 3.3   |                       |                        |
| 5-28                        | 10                    |                        | 9.2   | 0.47                    | 8.7   | -                      | 6.4   |                       |                        |
| 5-29                        | 8.3                   |                        | 6.2   | 0.23                    | 1.7   | -                      | 6.7   |                       |                        |
| 5-31                        | 4.5                   |                        | 5.9   | 0.29                    | 2.1   | 0.05                   | 11  |                       |                        |
| 6-3                         | 8.7                   |                        | 8.3   | 0.41                    | 3.4   | -                      | 11  |                       |                        |
| 6-4                         | 8.5                   |                        | 6.7   | 0.50                    | 3.1   | -                      | 12  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963  
Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Pasco (continued)</u>    |                       |                        |   |                         |   |                        |   |                       |                        |
| 6-5                         | 9.2                   |                        |   |                         |   |                        |   |                       |                        |
| 6-6                         | 8.7                   |                        | 9.5   | 1.0                     | 3.3   | -                      | 12  |                       |                        |
| 6-7                         | 9.8                   |                        | 8.4   | 1.5                     | 3.6   | -                      | 8.8   |                       |                        |
| 6-10                        | 8.7                   |                        | 9.0   | 0.74                    | 3.3   | -                      | 11  |                       |                        |
| 6-11                        | 11                    |                        | 21  | 1.1                     | 9.6   | -                      | 19  |                       |                        |
| 6-12                        | 9.4                   |                        | 21  | 1.2                     | 8.4   | -                      | 23  |                       |                        |
| 6-13                        | 11                    |                        | 18  | 0.78                    | 7.2   | -                      | 18  |                       |                        |
| 6-14                        | 10                    |                        | 29  | 2.3                     | 11  | -                      | 42  |                       |                        |
| 6-16                        | 10                    |                        | 16  | 0.78                    | 6.5   | -                      | 18  |                       |                        |
| 6-18                        | 6.7                   |                        | 12  | 0.54                    | 3.1   | -                      | 21  |                       |                        |
| 6-19                        | 7.6                   | 0.41                   | 7.0   | 0.20                    | 2.5   | -                      | 16  |                       |                        |
| 6-20                        | 13                    | 0.22                   | 8.4   | 0.67                    | -   | -                      | 12  |                       |                        |
| 6-21                        | 6.4                   |                        | 21  | 0.34                    | 5.7   | -                      | 32  |                       |                        |
| 6-24                        | 8.5                   |                        | 0.60  | -                       | 0.84  | 0.06                   | 7.6   |                       |                        |
| 6-25                        | 6.9                   |                        | 5.2   | -                       | 2.6   | 0.17                   | 13  |                       |                        |
| 6-26                        | 7.1                   |                        | 6.5   | 0.15                    | 2.4   | -                      | 7.2   |                       |                        |
| 6-27                        | 12                    |                        | 7.2   | 0.22                    | 2.6   | 0.79                   | 15  |                       |                        |
| 6-28                        | 12                    |                        | 12  | 0.42                    | 6.3   | 0.35                   | 22  |                       |                        |
| 7-1                         | 6.7                   |                        | 8.0   | 0.35                    | 4.7   | 0.47                   | 20  |                       |                        |
| 7-2                         | 8.2                   |                        | 2.6   | 0.13                    | 0.78  | -                      | 7.8   |                       |                        |
| 7-3                         | 9.7                   |                        | 26  | 1.3                     | 11  | -                      | 35  |                       |                        |
| 7-5                         | 7.3                   |                        | 19  | 1.0                     | 8.8   | -                      | 23  |                       |                        |
| 7-9                         | 11                    |                        | 12  | 0.58                    | 5.0   | -                      | 19  |                       |                        |
| 7-10                        | 7.8                   |                        | 12  | 0.59                    | 42  | -                      | 9.3   |                       | < 0.04                 |
| 7-12                        | 9.1                   |                        | 17  | 1.1                     | 7.3   | -                      | 28  |                       |                        |
|                             |                       |                        | 15  | 1.2                     | 7.2   | -                      | 28  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Pasco (continued)</u>    |                       |                        |   |                         |   |                        |   |                       |                        |
| 7-15                        | 11                    |                        | 5.5   | 1.6                     | 5.5   | 0.44                   | 25  |                       |                        |
| 7-16                        | 8.2                   |                        | 11  | 0.62                    | 4.4   | -                      | 19  |                       |                        |
| 7-17                        | 7.9                   |                        | 7.6   | 0.43                    | 3.6   | -                      | 19  |                       |                        |
| 7-19                        | 9.5                   |                        | 9.3   | 0.34                    | 4.2   | -                      | 17  |                       |                        |
| 7-22                        | 9.9                   |                        | 5.5   | 0.31                    | 2.4   | -                      | 11  |                       |                        |
| 7-23                        | 15                    |                        | 20  | 1.1                     | 9.3   | -                      | 23  |                       |                        |
| 7-24                        | 10                    |                        | 8.9   | 0.72                    | 4.2   | -                      | 16  |                       |                        |
| 7-26                        | 5.1                   |                        | 6.9   | -                       | 2.8   | -                      | 4.5   |                       |                        |
| 7-29                        | 3.8                   |                        | 6.3   | -                       | 2.9   | -                      | 5.7   |                       |                        |
| 7-30                        | 8.2                   |                        | 4.7   | 0.26                    | 2.0   | 0.20                   | 11  |                       |                        |
| 7-31                        | 9.1                   | -                      | 5.7   | 0.21                    | 2.3   | -                      | 8.1   |                       |                        |
| 8-1                         | 7.8                   |                        | 4.0   | 0.20                    | 1.7   | -                      | 12  |                       |                        |
| 8-2                         | 11                    |                        | 9.6   | 0.48                    | 4.7   | -                      | 31  |                       |                        |
| 8-5                         | 12                    | 0.84                   | 8.7   | 0.74                    | 1.1   | -                      | 32  |                       |                        |
| 8-6                         | 12                    |                        | 4.3   | 0.31                    | 2.4   | 0.50                   | 14  |                       |                        |
| 8-7                         | 10                    |                        | 1.1   | 0.07                    | 2.4   | -                      | 8.1   | 0.013                 |                        |
| 8-8                         | 17                    |                        | 1.2   | 0.05                    | 0.57  | -                      | 13  |                       |                        |
| 8-9                         | 34                    |                        | 12  | 1.3                     | 7.8   | 0.45                   | 25  |                       |                        |
| 8-12                        | 26                    |                        | 6.5   | 0.96                    | 4.8   | -                      | 9.5   |                       |                        |
| 8-13                        | 31                    |                        | 27  | 4.2                     | 23  | -                      | 44  |                       |                        |
| 8-14                        | 42                    |                        | 28  | 4.4                     | 31  | 0.26                   | 49  |                       |                        |
| 8-15                        | 35                    |                        | 34  | 5.2                     | 31  | -                      | 59  |                       |                        |
| 8-16                        | 27                    |                        | 7.2   | 1.0                     | 5.4   | 0.07                   | 14  |                       |                        |
| 8-19                        | 15                    |                        | 2.4   | 0.40                    | 1.3   | -                      | 3.9   |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>              | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| Reporting<br>Limits      | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Pasco (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 8-20                     | 17                    |                        | 11  | 1.8                     | 14  | -                      | 15  |                       |                        |
| 8-21                     | 11                    |                        | 2.3   | 0.36                    | 1.4   | -                      | 6.9   |                       |                        |
| 8-22                     | 9.6                   |                        | 1.6   | 0.29                    | 1.1   | -                      | 9.9   |                       |                        |
| 8-23                     | 6.0                   |                        | 3.2   | 0.83                    | 3.1   | 0.07                   | 20  |                       |                        |
| 8-26                     | 9.2                   |                        | 2.9   | 0.53                    | 3.2   | 0.06                   | 15  |                       |                        |
| 8-27                     | 9.8                   |                        | 13  | 2.5                     | 9.1   | 0.09                   | 48  |                       |                        |
| 8-28                     | 12                    | -                      | 4.2   | 0.87                    | 4.2   | -                      | 14  |                       |                        |
| 8-29                     | 11                    | -                      | 7.1   | 1.4                     | 6.8   | -                      | 20  |                       |                        |
| 8-30                     | 8.1                   |                        | 2.8   | 0.47                    | 2.3   | 0.28                   | 12  |                       |                        |
| 9-1                      | 10                    |                        | 4.7   | 0.87                    | 4.9   | 0.47                   | 16  |                       |                        |
| 9-3                      | 8.4                   |                        | 3.0   | 0.39                    | 5.5   | 0.62                   | 24  |                       |                        |
| 9-4                      | 12                    |                        | 4.5   | 0.90                    | 4.4   | 0.37                   | 20  |                       |                        |
| 9-5                      | 8.3                   |                        | 2.6   | 0.39                    | 2.4   | 0.54                   | 9.7   |                       |                        |
| 9-6                      | 6.4                   |                        | 1.8   | 0.23                    | 1.8   | 0.28                   | 8.1   |                       |                        |
| 9-7                      | 14                    |                        | 1.5   | 0.33                    | 2.0   | 0.32                   | 5.5   |                       |                        |
| 9-8                      | 8.5                   |                        | 2.3   | 0.46                    | 5.8   | 0.61                   | 8.5   |                       |                        |
| 9-9                      | 8.8                   |                        | 3.0   | 0.73                    | 3.1   | 0.18                   | 11  |                       |                        |
| 9-10                     | 8.6                   |                        | 2.4   | 0.51                    | 3.5   | 0.18                   | 8.8   |                       |                        |
| 9-11                     | 9.8                   |                        | 1.8   | 0.38                    | 1.9   | 0.11                   | 5.8   |                       |                        |
| 9-12                     | 6.6                   |                        | 2.7   | 0.61                    | 2.8   | 0.33                   | 8.8   |                       |                        |
| 9-13                     | 12                    |                        | 4.6   | 0.85                    | 4.9   | 0.05                   | 21  |                       |                        |
| 9-14                     | 8.3                   |                        | 2.4   | 0.62                    | 2.0   | 0.13                   | 5.4   |                       |                        |
| 9-16                     | 11                    |                        | 1.5   | 0.39                    | 1.5   | 0.09                   | 6.5   |                       |                        |
| 9-17                     | 6.6                   |                        | 2.3   | 0.51                    | 2.7   | 0.13                   | 15  |                       |                        |
| 9-18                     | 8.0                   |                        | 1.9   | 0.44                    | 2.0   | 0.23                   | 17  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Pasco (continued)</u>    |                       |                        |   |                         |   |                        |   |                       |                        |
| 9-19                        | 10                    |                        | 3.1   | 0.69                    | 3.2   | 0.30                   | 17  |                       |                        |
| 9-20                        | 10                    |                        | 3.7   | 0.84                    | 4.2   | 0.28                   | 17  |                       |                        |
| 9-23                        | 14                    |                        | 3.1   | 0.75                    | 3.0   | -                      | 11  |                       |                        |
| 9-24                        | 17                    |                        | 1.9   | 0.56                    | 2.0   | 0.31                   | 6.8   |                       |                        |
| 9-25                        | 20                    |                        | 1.8   | 0.47                    | 3.0   | 0.22                   | 5.6   |                       |                        |
| 9-26                        | 6.0                   |                        | 4.6   | 0.86                    | 6.2   | 0.10                   | 15  |                       |                        |
| 9-27                        | 7.5                   |                        | 1.5   | 0.38                    | 1.1   | 0.10                   | 7.0   |                       |                        |
| 9-30                        | 13                    |                        | 2.8   | 0.76                    | 3.0   | 0.20                   | 13  |                       |                        |
| 10-1                        | 10                    |                        | 4.9   | 1.4                     | 5.1   | 0.23                   | 20  |                       | 0.02                   |
| 10-2                        | 8.2                   |                        | 1.9   | 0.49                    | 2.2   | 0.33                   | 7.7   |                       |                        |
| 10-3                        | 6.0                   |                        | 5.7   | 1.5                     | 8.1   | 0.36                   | 17  |                       |                        |
| 10-4                        | 5.2                   |                        | 2.6   | 0.51                    | 2.1   | 0.31                   | 7.5   |                       |                        |
| 10-7                        | 8.8                   |                        | 3.6   | 1.1                     | 4.1   | 0.18                   | 16  |                       |                        |
| 10-8                        | 8.0                   |                        | 5.6   | 1.4                     | 7.1   | 0.19                   | 16  |                       |                        |
| 10-9                        | 10                    |                        | 2.3   | 0.77                    | 2.6   | -                      | 10  |                       |                        |
| 10-10                       | 10                    |                        | 5.3   | 1.5                     | 5.0   | 0.26                   | 23  |                       |                        |
| 10-11                       | 9.5                   |                        | 4.3   | 1.3                     | 3.8   | 0.25                   | 20  |                       |                        |
| 10-14                       | 10                    |                        | 3.5   | 1.1                     | 3.5   | 0.14                   | 24  |                       |                        |
| 10-15                       | 11                    |                        | 3.1   | 0.85                    | 4.9   | 0.11                   | 13  |                       |                        |
| 10-16                       | 8.9                   |                        | 3.5   | 0.99                    | 3.2   | 0.15                   | 17  |                       |                        |
| 10-18                       | 6.9                   |                        | 1.3   | 0.37                    | 1.5   | 0.16                   | 9.2   |                       |                        |
| 10-21                       | 11                    |                        | 2.3   | 0.74                    | 4.5   | -                      | 13  |                       |                        |
| 10-22                       | 10                    |                        | 3.3   | 1.2                     | 4.6   | 0.08                   | 20  |                       |                        |
| 10-23                       | 7.2                   |                        | 2.0   | 0.67                    | 2.3   | 0.18                   | 10  |                       |                        |
| 10-24                       | 14                    | 0.26                   | 3.9   | 1.3                     | 3.5   | 0.23                   | 24  |                       |                        |
| 10-25                       | 8.0                   |                        | 3.1   | 0.95                    | 3.3   | 0.19                   | 13  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Pasco (continued)</u>    |                       |                        |   |                         |   |                        |   |                       |                        |
| 10-28                       | 7.0                   |                        | 2.6   | 0.91                    | 3.2   | 0.22                   | 18  |                       |                        |
| 10-29                       | 2.8                   |                        | 2.8   | 0.90                    | 5.6   | 0.12                   | 11  |                       |                        |
| 10-30                       | 30                    |                        | 3.8   | 1.3                     | 6.9   | -                      | 9.4   |                       |                        |
| 10-31                       | 34                    |                        | 2.1   | 0.55                    | 2.6   | -                      | 9.5   |                       |                        |
| 11-1                        | 38                    |                        | 4.8   | 1.9                     | 6.4   | -                      | 8.5   |                       |                        |
| 11-4                        | 10                    |                        | 3.3   | 1.2                     | 4.8   | -                      | 16  |                       |                        |
| 11-5                        | 13                    |                        | 4.1   | 3.2                     | 5.2   | 0.54                   | 23  |                       |                        |
| 11-6                        | 7.8                   |                        | 3.1   | 1.2                     | 3.1   | 0.09                   | 10  |                       |                        |
| 11-7                        | 9.5                   |                        | 4.4   | 1.5                     | 5.5   | 0.16                   | 18  |                       |                        |
| 11-11                       | 6.9                   |                        | 2.4   | 0.93                    | 2.8   | -                      | 25  |                       |                        |
| 11-12                       | 6.8                   |                        | 2.7   | 0.95                    | 2.4   | 0.12                   | 29  |                       |                        |
| 11-13                       | 6.3                   |                        | 1.9   | 0.79                    | 2.7   | 0.09                   | 8.7   |                       |                        |
| 11-14                       | 4.3                   |                        | 1.5   | 0.61                    | 2.5   | 0.15                   | 9.0   |                       |                        |
| 11-15                       | 5.3                   |                        | 2.5   | 0.95                    | 3.6   | 0.19                   | 12  |                       |                        |
| 11-18                       | 9.1                   |                        | 4.2   | 1.6                     | 6.5   | 0.07                   | 24  |                       |                        |
| 11-19                       | 7.1                   |                        | 3.4   | 1.2                     | 5.9   | 0.10                   | 18  |                       |                        |
| 11-20                       | 8.9                   |                        | 3.3   | 0.87                    | 4.9   | 0.38                   | 17  |                       |                        |
| 11-21                       | 6.3                   |                        | 2.8   | 0.97                    | 6.3   | 0.38                   | 15  |                       |                        |
| 11-26                       | 13                    |                        | 4.3   | 1.6                     | 6.4   | 0.22                   | 21  |                       |                        |
| 11-27                       | 9.0                   |                        | 3.2   | 1.2                     | 5.2   | 0.07                   | 25  |                       |                        |
| <u>Byers Landing</u>        |                       |                        |   |                         |   |                        |   |                       |                        |
| 4-2                         | 36                    |                        | 190   | 5.9                     | 69  | -                      | -   |                       |                        |
| 4-10                        | 8.1                   |                        | 24  | 1.6                     | 5.9   | -                      | -   |                       |                        |

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

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APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

| <u>Date</u>                      | <u>Units of pc/g</u>  |                        |   |                         |   |                        |   |                       |                        |
|----------------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
|                                  | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
| <u>Reporting</u>                 |                       |                        |   |                         |   |                        |   |                       |                        |
| Limits                           | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Byers Landing (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 4-16                             | 6.5                   |                        | 10  | 1.4                     | 4.3   | 0.05                   | 6.0   |                       |                        |
| 4-24                             | 12                    |                        | 49  | 4.4                     | 17  | -                      | -   |                       |                        |
| 4-30                             | 7.0                   |                        | 18  | 1.6                     | 7.0   | -                      | 3.5   |                       |                        |
| 5-15                             | 8.0                   |                        | 19  | 1.2                     | 7.7   | -                      | -   |                       |                        |
| 5-22                             | 22                    |                        | 18  | 0.80                    | 6.5   | -                      | 6.7   |                       |                        |
| 5-28                             | 10                    |                        | 18  | 0.72                    | 6.9   | -                      | 9.3   |                       |                        |
| 6-5                              | 8.1                   |                        | 11  | 0.91                    | 4.6   | -                      | 8.7   |                       |                        |
| 6-11                             | 6.6                   |                        | 6.4   | 0.30                    | 3.1   | 0.08                   | 6.6   |                       |                        |
| 6-19                             | 8.3                   |                        | 4.4   | 0.13                    | 1.5   | 0.13                   | 6.2   |                       |                        |
| 6-25                             | 7.8                   |                        | 24  | 1.4                     | 11  | -                      | 30  |                       |                        |
| 7-3                              | 8.8                   |                        | 16  | 1.2                     | 9.4   | -                      | 11  |                       |                        |
| 7-9                              | 5.8                   |                        | 14  | 1.2                     | 7.3   | -                      | 16  |                       | < 0.047                |
| 7-15                             | 6.3                   |                        | 13  | 1.1                     | 6.6   | -                      | 23  |                       |                        |
| 7-23                             | 9.3                   |                        | 11  | 0.64                    | 6.1   | -                      | 16  |                       |                        |
| 7-31                             | 8.4                   | -                      | 2.7   | 0.15                    | 1.3   | 0.24                   | 5.1   |                       |                        |
| 8-6                              | 37                    |                        | 11  | 1.1                     | 15  | 0.63                   | 63  |                       | 0.13                   |
| 8-14                             | 48                    |                        | 11  | 2.0                     | 10  | -                      | 19  |                       |                        |
| 8-20                             | 12                    |                        | 5.9   | 1.2                     | 4.0   | -                      | 15  |                       |                        |
| 8-28                             | 13                    |                        | 4.8   | 1.1                     | 4.4   | -                      | 14  |                       |                        |
| 9-3                              | 9.3                   |                        | 2.3   | 0.73                    | 2.9   | 0.30                   | 7.9   |                       |                        |
| 9-4                              | 7.7                   |                        | 6.3   | 0.61                    | 4.5   | 0.18                   | 13  |                       | 0.062                  |
| 9-11                             | 11                    |                        | 4.0   | 0.62                    | 5.2   | 0.26                   | 14  |                       |                        |
| 9-17                             | 7.1                   |                        | 3.6   | 0.89                    | 4.7   | 0.25                   | 18  |                       |                        |
| 9-25                             | 9.2                   |                        | 2.0   | 0.59                    | 2.1   | 0.19                   | 6.4   |                       |                        |
| 10-1                             | 6.3                   |                        | 1.2   | 0.32                    | 1.5   | 0.12                   | 6.1   |                       | 0.061                  |

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

No entry indicates no analysis made.

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                      | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Pu<sup>103+</sup><br/>Pu<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|----------------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u>      | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Byers Landing (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 10-9                             | 6.8                   |                        | 3.9   | -                       | 3.5   | 0.25                   | 7.3   |                       |                        |
| 10-15                            | 5.8                   |                        | 1.9   | 0.27                    | 1.7   | -                      | 7.9   |                       |                        |
| 10-23                            | 7.1                   |                        | 5.5   | 1.6                     | 10  | 0.18                   | 21  |                       |                        |
| 10-29                            | 8.9                   |                        | 2.3   | 0.67                    | 3.9   | 0.11                   | 9.1   |                       |                        |
| 11-6                             | 9.0                   |                        | 7.2   | 2.5                     | 9.7   | 0.34                   | 35  |                       | 0.197                  |
| <u>West Richland</u>             |                       |                        |   |                         |   |                        |   |                       |                        |
| 9-12                             | 7.2                   |                        | 5.5   | 1.3                     | 5.0   | 0.94                   | 18  |                       |                        |
| 9-13                             | 6.7                   |                        | 5.1   | 1.2                     | 6.6   | 0.24                   | 9.1   |                       |                        |
| 9-14                             | 5.3                   |                        | 1.7   | 0.39                    | 3.7   | 1.2                    | 2.8   |                       |                        |
| 9-16                             | 4.7                   |                        | 5.4   | 1.4                     | 5.9   | 0.39                   | 20  |                       |                        |
| 9-17                             | 4.8                   |                        | 4.5   | 0.97                    | 5.5   | 0.33                   | 22  |                       |                        |
| 9-18                             | 8.1                   |                        | 5.7   | 1.3                     | 8.3   | 0.99                   | 30  |                       |                        |
| 9-19                             | 7.9                   |                        | 5.9   | 1.4                     | 7.5   | 0.36                   | 32  |                       |                        |
| 9-20                             | 11                    |                        | 5.4   | 1.4                     | 8.3   | 0.50                   | 30  |                       |                        |
| 9-23                             | 13                    |                        | 11  | 2.4                     | 15  | 0.55                   | 29  |                       |                        |
| 9-24                             | 16                    |                        | 3.4   | 0.87                    | 5.9   | 0.84                   | 11  |                       |                        |
| 9-25                             | 11                    |                        | 6.4   | 1.8                     | 9.5   | 0.58                   | 22  |                       |                        |
| 9-26                             | 10                    |                        | 5.1   | 1.3                     | 6.7   | 1.0                    | 38  |                       |                        |
| 9-27                             | 9.9                   |                        | 8.7   | 2.2                     | 9.9   | 0.59                   | 28  |                       |                        |
| 9-30                             | 13                    |                        | 8.7   | 2.2                     | 11  | 0.37                   | 25  |                       |                        |
| 10-1                             | 8.4                   |                        | 5.3   | 1.4                     | 6.5   | 0.14                   | 15  |                       |                        |
| 10-2                             | 9.0                   |                        | 13  | 3.4                     | 15  | 0.42                   | 38  |                       |                        |
| 10-3                             | 8.1                   |                        | 2.1   | 0.57                    | 1.8   | 0.41                   | 10  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                             | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|---|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <b>Reporting<br/>Limits</b>             | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <b><u>West Richland (continued)</u></b> |                       |                        |   |                         |   |                        |   |                       |                        |
| 10-4                                    | 10                    |                        | 7.1   | 1.7                     | 9.3   | 0.30                   | 20  |                       |                        |
| 10-7                                    | 8.6                   |                        | 5.8   | 1.5                     | 6.9   | 0.27                   | 21  |                       |                        |
| 10-8                                    | 7.6                   |                        | 5.0   | 1.6                     | 5.5   | 0.18                   | 18  |                       |                        |
| 10-9                                    | 6.2                   |                        | 1.6   | 2.5                     | 7.1   | 0.49                   | 25  |                       |                        |
| 10-10                                   | 6.4                   |                        | 21  | 6.0                     | 23  | 0.13                   | 66  |                       |                        |
| 10-11                                   | 8.9                   |                        | 10  | 2.8                     | 11  | 0.23                   | 35  |                       |                        |
| 10-15                                   | 13                    |                        | 5.3   | 0.56                    | 4.8   | 0.17                   | 14  |                       |                        |
| 10-16                                   | 8.8                   |                        | 8.5   | 0.90                    | 12  | 0.27                   | 19  |                       |                        |
| 10-17                                   | 9.0                   |                        | 3.2   | 0.87                    | 5.6   | 0.14                   | 18  |                       |                        |
| 10-18                                   | 10                    |                        | 3.3   | 0.87                    | 6.2   | 0.42                   | 27  |                       |                        |
| 10-21                                   | 8.8                   |                        | 3.6   | 1.0                     | 6.3   | 0.10                   | 21  |                       |                        |
| 10-22                                   | 11                    |                        | 7.1   | 2.2                     | 11  | 0.19                   | 30  |                       |                        |
| 10-23                                   | 9.5                   |                        | 12  | 3.3                     | 14  | 0.17                   | 43  |                       |                        |
| 10-24                                   | 14                    |                        | 5.1   | 1.8                     | 10  | 0.93                   | 31  |                       |                        |
| 10-25                                   | 18                    |                        | 4.8   | 1.5                     | 6.1   | 0.17                   | 19  |                       |                        |
| 10-28                                   | 9.4                   |                        | 9.7   | 3.1                     | 12  | 0.15                   | 39  |                       |                        |
| 10-29                                   | 11                    |                        | 6.9   | 1.9                     | 11  | -                      | 22  |                       |                        |
| 10-30                                   | 8.8                   |                        | 5.8   | 1.7                     | 9.2   | 0.19                   | 35  |                       |                        |
| 10-31                                   | 29                    |                        | 8.7   | 4.0                     | 12  | -                      | 37  |                       |                        |
| 11-1                                    | 10                    |                        | 5.8   | 2.0                     | 9.8   | -                      | 18  |                       |                        |
| 11-4                                    | 12                    |                        | 6.4   | 2.2                     | 10  | -                      | 31  |                       |                        |

Benton City

|     |     |    |      |     |   |    |
|-----|-----|----|------|-----|---|----|
| 5-1 | 6.6 | 11 | 0.47 | 3.8 | - | 11 |
|-----|-----|----|------|-----|---|----|

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

| <u>Date</u>                    | <u>Units of pc/g</u>  |                        |   |                         |   |                        |   |                       |                        |
|--------------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
|                                | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
| <u>Reporting<br/>Limits</u>    | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Benton City (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 5-2                            | 7.2                   |                        | 16  | 1.1                     | 6.7   | -                      | 11  |                       |                        |
| 5-3                            | 7.4                   |                        | 12  | 1.1                     | 4.9   | -                      | 5.6   |                       |                        |
| 5-6                            | 5.3                   |                        | 11  | 1.1                     | 3.3   | -                      | 12  |                       |                        |
| 5-8                            | 7.1                   |                        | 22  | 1.7                     | 8.2   | -                      | 22  |                       |                        |
| 5-9                            | 7.4                   |                        | 36  | 2.7                     | 13  | -                      | 6.3   |                       |                        |
| 5-10                           | 6.2                   |                        | 33  | 2.6                     | 12  | -                      | 32  |                       |                        |
| 5-13                           | 6.7                   |                        | 15  | 0.84                    | 6.3   | -                      | 9.7   |                       |                        |
| 5-16                           | 8.3                   |                        | 8.2   | 0.19                    | 3.3   | -                      | 5.2   |                       |                        |
| 5-17                           | 7.0                   |                        | 6.3   | 0.23                    | 2.3   | -                      | 6.6   |                       |                        |
| 5-20                           | 8.3                   |                        | 5.9   | 0.50                    | 2.7   | -                      | 7.6   |                       |                        |
| 5-21                           | 11                    |                        | 11  | 1.2                     | 4.4   | -                      | 8.9   |                       |                        |
| 5-22                           | 11                    |                        | 6.6   | -                       | 2.3   | -                      | 2.4   |                       |                        |
| 5-23                           | 9.4                   |                        | 8.2   | 0.75                    | 3.9   | 0.10                   | 6.9   |                       |                        |
| 5-24                           | 8.7                   |                        | 3.0   | 0.18                    | 1.3   | -                      | 5.6   |                       |                        |
| 5-27                           | 8.6                   |                        | 3.3   | -                       | 1.5   | 0.07                   | 1.9   |                       |                        |
| 5-29                           | 8.3                   |                        | 3.5   | 0.16                    | 1.2   | -                      | 6.1   |                       |                        |
| 5-31                           | 6.9                   |                        | 4.5   | 0.17                    | 2.5   | -                      | 8.7   |                       |                        |
| 6-3                            | 5.7                   |                        | 13  | 0.40                    | 5.0   | -                      | 21  |                       |                        |
| 6-4                            | 5.6                   |                        | 7.1   | 1.3                     | 4.4   | -                      | 15  |                       |                        |
| 6-6                            | 5.8                   |                        | 11  | 0.63                    | 4.3   | -                      | 15  |                       |                        |
| 6-7                            | 6.5                   |                        | 9.9   | 0.48                    | 4.1   | -                      | 17  |                       |                        |
| 6-10                           | 6.0                   |                        | 10  | 0.30                    | 5.1   | -                      | 14  |                       |                        |
| 6-12                           | 7.0                   |                        | 18  | 0.50                    | 7.0   | -                      | 28  |                       |                        |
| 6-14                           | 7.0                   |                        | 6.8   | 0.40                    | 2.7   | -                      | 14  |                       |                        |
| 6-17                           | 7.7                   |                        | 11  | 0.99                    | 4.3   | -                      | 20  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                    | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| Reporting<br>Limits            | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Benton City (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 6-18                           | 8.2                   |                        | 8.6   | 0.33                    | 3.2   | -                      | 22  |                       |                        |
| 6-20                           | 8.4                   |                        | 2.9   | 0.09                    | 0.8   | -                      | 13  |                       |                        |
| 6-21                           | 7.6                   |                        | 1.2   | -                       | 1.3   | -                      | 11  |                       |                        |
| 6-24                           | 8.2                   |                        | 3.3   | -                       | 2.2   | 0.18                   | 8.8   |                       |                        |
| 6-26                           | 6.6                   |                        | 3.8   | 0.28                    | 1.7   | -                      | 9.0   |                       |                        |
| 6-27                           | 8.7                   |                        | 5.1   | 0.58                    | 2.9   | 0.28                   | 12  |                       |                        |
| 6-28                           | 8.9                   |                        | 7.4   | 0.45                    | 5.1   | 0.38                   | 15  |                       |                        |
| 7-1                            | 18                    |                        | 5.2   | 0.33                    | 2.1   | -                      | 8.1   |                       |                        |
| 7-2                            | 9.3                   |                        | 10  | 0.34                    | 5.2   | -                      | 21  |                       |                        |
| 7-3                            | 39                    |                        | 4.7   | 0.24                    | -   | -                      | -   |                       |                        |
| 7-5                            | 7.5                   |                        | 5.0   | 0.36                    | 3.3   | 0.07                   | 19  |                       |                        |
| 7-10                           | 8.4                   |                        | 16  | 1.1                     | 7.1   | -                      | 23  |                       |                        |
| 7-12                           | 8.5                   |                        | 9.7   | 0.62                    | 5.1   | -                      | 29  |                       |                        |
| 7-15                           | 7.9                   |                        | 14  | 1.0                     | 6.8   | -                      | 32  |                       |                        |
| 7-16                           | 8.4                   |                        | 7.9   | 0.74                    | 4.8   | -                      | 22  |                       |                        |
| 7-17                           | 8.9                   |                        | 5.8   | 0.32                    | 3.5   | 0.05                   | 19  |                       |                        |
| 7-19                           | 7.5                   |                        | 3.6   | 0.11                    | 1.7   | -                      | 14  |                       |                        |
| 7-22                           | 7.7                   |                        | 8.1   | 0.53                    | 4.1   | -                      | 13  |                       |                        |
| 7-23                           | 6.9                   |                        | 2.9   | 1.8                     | 3.5   | 0.36                   | 13  |                       |                        |
| 7-24                           | 6.8                   |                        | 4.2   | 0.19                    | 2.4   | -                      | 11  |                       |                        |
| 7-26                           | 4.9                   |                        | 8.6   | 0.04                    | 4.1   | 0.08                   | 8.4   |                       |                        |
| 7-29                           | 4.9                   |                        | 9.5   | 0.12                    | 4.9   | -                      | 12  |                       |                        |
| 7-30                           | 8.2                   |                        | 3.4   | 0.24                    | 2.0   | 0.13                   | 11  |                       |                        |
| 7-31                           | 11                    |                        | 7.3   | 0.37                    | 3.5   | -                      | 14  |                       |                        |
| 8-1                            | 11                    | -                      | 9.0   | 0.47                    | 4.7   | -                      | 12  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                    | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u>    | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Benton City (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 8-2                            | 13                    |                        | 10  | 1.1                     | 6.8   | -                      | -   |                       |                        |
| 8-5                            | 7.5                   | 0.45                   | 2.9   | 0.30                    | -   | -                      | 18  |                       |                        |
| 8-9                            | 33                    |                        | 7.9   | 1.1                     | 8.6   | -                      | 12  |                       |                        |
| 8-20                           | 15                    |                        | 3.1   | 0.78                    | 1.5   | -                      | 7.7   |                       |                        |
| 8-28                           | 14                    |                        | 0.92  | 0.22                    | 1.1   | 0.08                   | 1.8   |                       |                        |
| 9-4                            | 8.8                   |                        | 2.2   | 0.54                    | 3.6   | 1.5                    | 12  |                       |                        |
| 9-5                            | 11                    |                        | 2.3   | 0.45                    | 1.7   | 1.4                    | 8.8   |                       |                        |
| 9-6                            | 8.3                   |                        | 2.5   | 0.46                    | 2.8   | 1.8                    | 21  |                       |                        |
| 9-7                            | 21                    |                        | 2.0   | 0.09                    | 4.6   | 2.6                    | 4.6   |                       |                        |
| 9-8                            | 11                    |                        | 3.4   | 0.76                    | 6.5   | 1.0                    | 8.7   |                       |                        |
| 9-9                            | 9.6                   |                        | 2.1   | 0.46                    | 3.6   | 0.34                   | 5.0   |                       |                        |
| 9-10                           | 6.9                   |                        | 1.5   | 0.35                    | 1.9   | 0.39                   | 4.1   |                       |                        |
| 9-11                           | 3.1                   |                        | 1.2   | 0.26                    | 1.6   | 0.05                   | 4.2   |                       |                        |
| 9-12                           | 8.1                   |                        | 1.3   | 0.33                    | 1.4   | 0.38                   | 3.4   |                       |                        |
| 9-13                           | 7.5                   |                        | 2.1   | 0.45                    | 3.1   | 0.12                   | 16  |                       |                        |
| 9-14                           | 12                    |                        | 6.6   | 1.6                     | 6.8   | 0.20                   | 15  |                       |                        |
| 9-16                           | 5.5                   |                        | 2.2   | 0.53                    | 2.5   | 0.18                   | 11  |                       |                        |
| 9-17                           | 8.9                   |                        | 6.4   | 1.4                     | 10  | 0.37                   | 29  |                       |                        |
| 9-18                           | 9.4                   |                        | 2.3   | 0.49                    | 2.8   | 0.36                   | 14  |                       |                        |
| 9-19                           | 11                    |                        | 3.8   | 0.75                    | 5.4   | 0.37                   | 22  |                       |                        |
| 9-20                           | 9.9                   |                        | 2.2   | 0.61                    | 3.6   | 0.20                   | 10  |                       |                        |
| 9-23                           | 16                    |                        | 2.4   | 0.51                    | 3.5   | 0.22                   | 7.0   |                       |                        |
| 9-24                           | 18                    |                        | 2.6   | 0.64                    | 4.0   | 0.30                   | 5.4   |                       |                        |
| 9-25                           | 12                    |                        | 2.9   | 0.78                    | 5.5   | 0.61                   | 9.4   |                       |                        |
| 9-26                           | 12                    |                        | 3.1   | 0.91                    | 5.8   | 1.1                    | 27  |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                    | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|--------------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u>    | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Benton City (continued)</u> |                       |                        |   |                         |   |                        |   |                       |                        |
| 9-27                           | 7.8                   |                        | 4.2   | 1.2                     | 4.4   | 0.31                   | 15  |                       |                        |
| 9-30                           | 8.6                   |                        | 1.8   | 0.51                    | 3.3   | 0.24                   | 5.7   |                       |                        |
| 10-1                           | 9.1                   |                        | 2.4   | 0.69                    | 2.7   | 0.17                   | 8.7   |                       |                        |
| 10-10                          | 11                    |                        | 9.1   | 4.6                     | 14  | 0.34                   | 25  |                       |                        |
| 10-17                          | 12                    |                        | 4.1   | 0.98                    | 6.4   | -                      | 20  |                       |                        |
| 11-1                           | 21                    |                        | 4.0   | 1.3                     | 6.0   | -                      | 4.6   |                       |                        |
| <u>Eltopia</u>                 |                       |                        |   |                         |   |                        |   |                       |                        |
| 4-2                            | 13                    |                        | 31  | 1.7                     | 8.8   | -                      | -   |                       |                        |
| 4-10                           | 7.7                   |                        | 37  | 2.4                     | 13  | -                      | -   |                       |                        |
| 4-16                           | 6.2                   |                        | 20  | 1.5                     | 6.3   | 0.06                   | 9.8   |                       |                        |
| 4-24                           | 8.6                   |                        | 22  | 2.4                     | 5.9   | -                      | -   |                       |                        |
| 4-30                           | 5.9                   |                        | 13  | 1.3                     | 5.1   | -                      | 4.0   |                       |                        |
| 5-15                           | 6.2                   |                        | 12  | 0.71                    | 4.5   | -                      | 8.3   |                       |                        |
| 5-22                           | 7.2                   |                        | 4.1   | -                       | 1.9   | 0.09                   | 2.7   |                       |                        |
| 5-28                           | 9.8                   |                        | 8.6   | 0.33                    | 3.3   | -                      | 5.6   |                       |                        |
| 6-5                            | 14                    |                        | 21  | 0.69                    | 9.8   | -                      | 8.1   |                       |                        |
| 6-11                           | 6.5                   |                        | 6.2   | 0.40                    | 2.6   | 0.23                   | 7.4   |                       |                        |
| 6-19                           | 7.3                   |                        | 2.3   | 0.19                    | 0.94  | 0.38                   | 3.2   |                       |                        |
| 6-25                           | 9.3                   |                        | 3.1   | 0.21                    | 2.1   | 0.13                   | 8.1   |                       |                        |
| 7-1                            | 6.4                   |                        | 4.0   | 0.22                    | 1.9   | -                      | 15  |                       |                        |
| 7-15                           | 8.6                   |                        | 17  | 1.3                     | 8.7   | -                      | 33  |                       |                        |
| 7-23                           | 6.8                   |                        | 8.5   | 0.67                    | 4.6   | 0.18                   | 20  |                       |                        |
| 8-6                            | 18                    |                        | 19  | 1.6                     | 13  | -                      | 48  |                       |                        |
|                                |                       |                        |   |                         |   |                        |   | 1.2                   |                        |

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

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APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963  
Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Eltopia (continued)</u>  |                       |                        |   |                         |   |                        |   |                       |                        |
| 8-14                        | 29                    |                        | 7.0   | 0.98                    | 7.8   | -                      | 4.6   |                       |                        |
| 8-20                        | 25                    |                        | 3.1   | 0.73                    | 5.0   | -                      | 3.7   |                       |                        |
| 8-28                        | 28                    |                        | 6.5   | 1.2                     | 8.0   | -                      | 16  |                       |                        |
| 9-3                         | 30                    |                        | 6.1   | 1.3                     | 6.9   | 0.09                   | 13  |                       |                        |
| 9-4                         | 5.7                   |                        | 7.4   | 0.72                    | 4.9   | 0.17                   | 20  |                       | 0.056                  |
| 9-11                        | 14                    |                        | 3.0   | 0.66                    | 2.4   | 0.20                   | 11  |                       |                        |
| 9-19                        | 31                    |                        | 4.8   | 1.1                     | 5.1   | 0.20                   | 14  |                       |                        |
| 9-25                        | 9.2                   |                        | 1.9   | 0.42                    | 2.5   | 0.16                   | 7.1   |                       |                        |
| 10-1                        | 7.5                   |                        | 2.0   | 0.54                    | 2.7   | 0.17                   | 9.0   |                       | 0.008                  |
| 10-9                        | 25                    |                        | 13  | 3.6                     | 17  | -                      | 33  |                       |                        |
| 10-15                       | 17                    |                        | 3.8   | 0.40                    | 3.3   | -                      | 6.4   |                       |                        |
| 10-23                       | 8.1                   |                        | 0.54  | 0.26                    | 0.56  | 0.18                   | 5.0   |                       |                        |
| 10-29                       | 32                    |                        | 2.8   | 0.86                    | 4.8   | 0.06                   | 9.8   |                       |                        |
| 11-6                        | 37                    |                        | 7.2   | 3.6                     | 9.5   | -                      | 25  |                       | 1.47                   |
| <u>Mesa</u>                 |                       |                        |   |                         |   |                        |   |                       |                        |
| 4-2                         | 13                    |                        | 19  | 0.69                    | 5.1   | -                      | -   |                       |                        |
| 4-10                        | 7.2                   |                        | 17  | 1.6                     | 7.1   | -                      | 6.3   |                       |                        |
| 4-16                        | 5.2                   |                        | 8.2   | 1.0                     | 3.1   | 0.09                   | 7.3   |                       |                        |
| 4-24                        | 10                    |                        | 29  | 2.9                     | 9.6   | -                      | -   |                       |                        |
| 4-30                        | 5.9                   |                        | 24  | 1.4                     | 9.5   | -                      | 16  |                       |                        |
| 5-15                        | 6.8                   |                        | 12  | 1.4                     | 5.4   | 0.06                   | 12  |                       |                        |
| 5-22                        | 7.8                   |                        | 6.8   | 0.25                    | 2.8   | -                      | 9.1   |                       |                        |
| 6-5                         | 5.6                   |                        | 4.1   | 0.16                    | 1.2   | -                      | 3.1   |                       |                        |

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

APPENDIX C  
TABLE 2 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN PASTURE GRASS - 1963

Units of pc/g

| <u>Date</u>                 | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Cs<sup>137</sup></u> | <u>Ru<sup>103+</sup><br/>Ru<sup>106</sup></u> | <u>I<sup>131</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>P<sup>32</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|------------------------|---|-------------------------|---|------------------------|---|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.3                   | 0.08                   | 0.05  | 0.03                    | 0.5   | 0.05                   | 0.5   | 0.1                   | 0.002                  |
| <u>Mesa (continued)</u>     |                       |                        |   |                         |   |                        |   |                       |                        |
| 6-11                        | 8.1                   |                        | 10  | 0.62                    | 3.6   | -                      | 10  |                       |                        |
| 6-19                        | 7.6                   |                        | 2.3   | 0.22                    | 1.2   | 0.26                   | 4.1   |                       |                        |
| 6-25                        | 6.6                   |                        | 4.9   | 0.18                    | 2.2   | 0.15                   | 8.6   |                       |                        |
| 7-1                         | 6.8                   |                        | 5.8   | 0.57                    | 3.4   | -                      | 7.7   |                       |                        |
| 7-9                         | 6.6                   |                        | 14  | 0.67                    | 6.8   | -                      | 14  |                       | 0.107                  |
| 7-15                        | 20                    |                        | 25  | 1.2                     | 15  | -                      | 22  |                       |                        |
| 7-23                        | 23                    |                        | 24  | 1.4                     | 13  | -                      | 19  |                       |                        |
| 7-31                        | 7.7                   | 0.09                   | 0.9   | 0.09                    | -   | 0.07                   | 0.9   |                       |                        |
| 8-6                         | 24                    |                        | 30  | 2.2                     | 20  | -                      | 67  |                       | 0.777                  |
| 8-14                        | 20                    |                        | 20  | 3.5                     | 16  | -                      | 40  |                       |                        |
| 8-20                        | 31                    |                        | 4.8   | 0.87                    | 4.6   | -                      | 7.1   |                       |                        |
| 8-28                        | 26                    |                        | 9.4   | 1.8                     | 9.2   | 0.08                   | 28  |                       |                        |
| 9-3                         | 7.1                   |                        | 0.3   | 0.09                    | 0.96  | 0.26                   | 4.2   |                       |                        |
| 9-5                         | 7.4                   |                        | 1.0   | 0.20                    | 1.0   | 0.25                   | 4.4   |                       |                        |
| 9-11                        | 13                    |                        | 2.0   | 0.42                    | 2.0   | 0.12                   | 5.9   |                       |                        |
| 9-19                        | 7.1                   |                        | 1.1   | 0.33                    | 1.2   | 0.19                   | 16  |                       |                        |
| 9-25                        | 9.5                   |                        | 1.6   | 0.31                    | 2.2   | 0.36                   | 11  |                       |                        |
| 10-1                        | 7.9                   |                        | 0.47  | 0.15                    | 0.53  | -                      | 2.3   |                       |                        |
| 10-9                        | 26                    |                        | 10  | 3.4                     | 12  | 0.09                   | 36  |                       |                        |
| 10-15                       | 27                    |                        |   | 9.5                     | 0.90  | 9.7                    | 0.05  | 11                    |                        |
| 10-23                       | 8.5                   |                        |   | 1.6                     | 0.65  | 2.8                    | 0.48  | 13                    |                        |
| 10-29                       | 26                    |                        |   | 1.1                     | 0.44  | 0.97                   | 0.07  | 35                    |                        |
| 11-6                        | 14                    |                        |   | 2.4                     | 1.1   | 3.0                    | 0.07  | 11                    | 0.263                  |

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

APPENDIX C  
TABLE 3

CONCENTRATIONS OF RADIONUCLIDES IN GROUND BEEF PURCHASED FROM LOCAL MARKETS - 1963

Units of pc/g

| Date                | P <sup>32</sup> | Ce <sup>144</sup> -<br>Pr <sup>144</sup> | I <sup>131</sup> | Cs <sup>137</sup> | Zr <sup>95</sup> -<br>Nb <sup>95</sup> | Zn <sup>65</sup> | K <sup>40</sup> | Sr <sup>90</sup> |
|---------------------|-----------------|--|------------------|-------------------|--|------------------|-----------------|------------------|
| Reporting<br>Limits | 0.1             | 0.5                                      | 0.05             | 0.03              | 0.05                                   | 0.08             | 0.4             | 0.002            |
| 1-7                 | -               | -  | -                | 0.06              | -                                      | -                | 3.0             | 0.003            |
| 1-7                 | -               | -  | -                | 0.05              | -                                      | -                | 2.7             | 0.004            |
| 1-16                | -               | -  | -                | 0.24              | -                                      | 4.8              | 2.6             | 0.01             |
| 2-1                 | -               | -  | -                | 0.17              | -                                      | 0.09             | 2.8             | -                |
| 2-1                 | -               | -  | 0.06             | 0.11              | -                                      | 0.11             | 3.5             | -                |
| 3-8                 | -               | -  | -                | 0.06              | -                                      | -                | 3.3             | -                |
| 3-8                 | -               | -  | -                | 0.16              | -                                      | -                | 3.1             | -                |
| 4-25                | -               | -  | -                | 0.17              | -                                      | -                | 3.1             | -                |
| 4-25                | -               | -  | -                | 0.08              | -                                      | -                | 3.3             | 0.003            |
| 5-2                 | -               | 0.5                                      | -                | 0.12              | -                                      | 0.08             | 2.9             | 0.003            |
| 5-2                 | -               | 0.7                                      | -                | 0.15              | -                                      | 0.13             | 3.4             | 0.003            |
| 5-2                 | -               | -  | -                | 0.76              | -                                      | 0.15             | 3.3             | 0.012            |
| 5-2                 | -               | 0.9                                      | -                | 0.25              | -                                      | 0.08             | 3.1             | 0.004            |
| 5-2                 | -               | 0.6                                      | -                | 0.33              | 0.05                                   | 0.28             | 3.7             | 0.004            |
| 5-2                 | -               | -  | -                | 0.11              | -                                      | 0.23             | 2.6             | 0.006            |
| 5-2                 | -               | 0.5                                      | -                | 0.23              | -                                      | 0.08             | 3.0             | 0.005            |
| 6-17                | -               | -  | -                | 0.15              | -                                      | 0.09             | 3.1             | 0.002            |
| 6-17                | -               | -  | -                | 0.16              | -                                      | -                | 3.5             | -                |
| 6-17                | -               | 0.5                                      | -                | 0.84              | -                                      | -                | 3.0             | 0.003            |
| 7-9                 | -               | -  | -                | 0.16              | -                                      | -                | 3.3             | 0.009            |
| 7-9                 | -               | -  | -                | 0.07              | -                                      | -                | 2.9             | 0.013            |
| 7-9                 | -               | -  | 0.11             | 0.11              | -                                      | 0.08             | 0.5             | 0.012            |
| 8-5                 | -               | -  | -                | 0.11              | -                                      | -                | 3.0             | 0.002            |
| 8-5                 | -               | 1.0                                      | -                | 0.09              | -                                      | -                | 2.4             | 0.005            |
| 8-5                 | -               | -  | -                | 0.09              | -                                      | -                | 2.8             | 0.002            |
| 9-26                | -               | -  | -                | 0.15              | -                                      | 0.11             | 3.1             | < 0.008          |
| 9-26                | -               | -  | -                | 0.12              | -                                      | -                | 3.4             | < 0.014          |
| 10-15               | -               | 0.09                                     | 0.13             | -                 | -                                      | 0.11             | 3.3             | < 0.008          |

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

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APPENDIX C  
TABLE 3 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN GROUND BEEF PURCHASED FROM LOCAL MARKETS - 1963  
Units of pc/g

| <u>Date</u>                 | <u>P<sup>32</sup></u> | <u>Ce<sup>144</sup>-<br/>Pr<sup>144</sup></u> | <u>I<sup>131</sup></u> | <u>Cs<sup>137</sup></u> | <u>Zr<sup>95</sup>-<br/>Nb<sup>95</sup></u> | <u>Zn<sup>65</sup></u> | <u>K<sup>40</sup></u> | <u>Sr<sup>90</sup></u> |
|-----------------------------|-----------------------|---|------------------------|-------------------------|---|------------------------|-----------------------|------------------------|
| <u>Reporting<br/>Limits</u> | 0.1                   | 0.5   | 0.05                   | 0.03                    | 0.05  | 0.08                   | 0.4                   | 0.002                  |
| 10-15                       | -                     | -   | -                      | 0.30                    | -   | -                      | 2.4                   | < 0.007                |
| 11-7                        | -                     | -   | -                      | 0.13                    | -   | 0.09                   | 3.0                   | < 0.011                |
| 11-7                        | -                     | -   | -                      | 0.39                    | -   | 0.08                   | 3.1                   | < 0.004                |
| 11-7                        | -                     | -   | -                      | 0.13                    | -   | -                      | 3.2                   | 0.004                  |
| 12-10                       | < 0.11                | -   | -                      | 0.49                    | -   | -                      | 3.1                   | < 0.009                |
| 12-10                       | < 0.11                | -   | -                      | 0.24                    | -   | -                      | 4.1                   | < 0.017                |
| 12-10                       | < 0.11                | -   | -                      | 0.22                    | -   | -                      | 3.5                   | < 0.007                |

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

APPENDIX C  
TABLE 4

CONCENTRATIONS OF RADIONUCLIDES IN LOCALLY GROWN FARM PRODUCE - 1963

Units of pc/g

| <u>Date</u>      | <u>Product</u> | <u>P<sup>32</sup></u> | <u>Ce<sup>144</sup>-Pr<sup>144</sup></u> | <u>I<sup>131</sup></u> | <u>Cs<sup>137</sup></u> | <u>Zr<sup>95</sup>-Nb<sup>95</sup></u> | <u>Zn<sup>65</sup></u> | <u>K<sup>40</sup></u> | <u>Sr<sup>90</sup></u> |
|------------------|----------------|-----------------------|--|------------------------|-------------------------|--|------------------------|-----------------------|------------------------|
| Reporting Limits |                | 0.1                   | 0.5                                      | 0.05                   | 0.03                    | 0.05                                   | 0.08                   | 0.4                   | 0.002                  |
| 5-31             | Strawberries   |                       | 2.1                                      | -                      | 0.05                    | 0.62                                   |                        | 1.7                   |                        |
| 5-31             | Asparagus      |                       | 1.2                                      | -                      | -                       | 0.07                                   |                        | 2.3                   |                        |
| 5-31             | Asparagus      | -                     | -  | -                      | -                       | 0.13                                   |                        | 2.1                   |                        |
| 5-31             | Strawberries   | -                     | 1.3                                      | -                      | 0.11                    | 0.79                                   |                        | 1.4                   |                        |
| 5-31             | Strawberries   | 0.22                  | 0.7                                      | -                      | 0.05                    | 0.43                                   |                        | 1.6                   |                        |
| 5-31             | Asparagus      | -                     | -  | -                      | -                       | 0.06                                   |                        | 2.6                   |                        |
| 6-11             | Lettuce        | -                     | 5.1                                      | -                      | 0.15                    | 0.87                                   | 0.52                   | 4.8                   | 0.11                   |
| 6-11             | Beets          | -                     | 2.9                                      | -                      | 0.08                    | 2.0                                    | -                      | 6.6                   | 0.002                  |
| 6-19             | Cabbage        |                       | 0.8                                      | -                      | -                       | 0.06                                   |                        | 2.6                   | 0.007                  |
| 6-19             | Lettuce        |                       | 1.9                                      | -                      | 0.07                    | 1.0                                    |                        | 3.8                   | 0.035                  |
| 6-19             | Parsnips       |                       | -  | -                      | -                       | -                                      |                        | 2.6                   | 0.009                  |
| 6-19             | Cherries       |                       | -  | -                      | 0.05                    | 0.13                                   |                        | 3.0                   | 0.009                  |
| 6-19             | Lettuce        |                       | 4.4                                      | -                      | 0.2                     | 2.7                                    |                        | 4.7                   | 0.039                  |
| 6-19             | Beet Tops      |                       | 5.7                                      | 0.12                   | 0.37                    | 4.0                                    |                        | 6.3                   | -                      |
| 6-19             | Beet Roots     |                       | 1.7                                      | -                      | -                       | 0.21                                   |                        | 3.6                   |                        |
| 6-19             | Onions         |                       | -  | -                      | 0.4                     | 0.35                                   |                        | 2.1                   | 0.011                  |
| 6-19             | Carrots        |                       | 0.9                                      | -                      | 0.04                    | 0.36                                   |                        | 5.4                   | 0.012                  |
| 6-19             | Beet Greens    | 0.36                  | 4.5                                      | 0.06                   | 0.19                    | 2.7                                    | -                      | 8.5                   | -                      |
| 6-19             | Beet Roots     | -                     | -  | -                      | -                       | 0.07                                   |                        | 5.9                   |                        |
| 6-19             | Lettuce        | 0.12                  | 2.1                                      | 0.06                   | 0.11                    | 1.4                                    | 0.08                   | 5.1                   | 0.016                  |
| 6-19             | Cherries       | -                     | -  | -                      | -                       | 0.06                                   | -                      | -                     | 0.007                  |
| 6-25             | Apples         | -                     | -  | -                      | -                       | -                                      | -                      | 1.3                   | 0.003                  |
| 7-3              | Beans          | 0.11                  | 3.3                                      | -                      | 0.14                    | 0.27                                   | 0.58                   | 3.8                   | 0.009                  |
| 7-9              | Apricots       | -                     | -  | -                      | 0.10                    | 0.63                                   |                        | 1.8                   | 0.036                  |
| 7-9              | Apricots       |                       | 1.1                                      | -                      | 0.08                    | 0.6                                    |                        | 2.0                   | 0.035                  |
| 7-11             | Lettuce        |                       | 9.6                                      | -                      | 0.24                    | 2.9                                    |                        | 5.1                   | 0.083                  |
| 7-11             | Turnips        |                       | 6.5                                      | -                      | 0.11                    | 1.8                                    |                        | 3.8                   | 0.046                  |

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

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APPENDIX C  
TABLE 4 (Continued)

CONCENTRATIONS OF RADIONUCLIDES IN LOCALLY GROWN FARM PRODUCE - 1963

Units of pc/g

| <u>Date</u>      | <u>Product</u> | <u>P<sup>32</sup></u> | <u>Ce<sup>144</sup>-Pr<sup>144</sup></u> | <u>I<sup>131</sup></u> | <u>Cs<sup>137</sup></u> | <u>Zr<sup>95</sup>-Nb<sup>95</sup></u> | <u>Zn<sup>65</sup></u> | <u>K<sup>40</sup></u> | <u>Sr<sup>90</sup></u> |
|------------------|----------------|-----------------------|--|------------------------|-------------------------|--|------------------------|-----------------------|------------------------|
| Reporting Limits |                | 0.1                   | 0.5                                      | 0.05                   | 0.03                    | 0.05                                   | 0.08                   | 0.4                   | 0.002                  |
| 7-11             | Apricots       |                       | 0.8                                      | -                      | 0.04                    | 0.36                                   |                        | 2.9                   | 0.019                  |
| 7-11             | Beans          |                       | 1.8                                      | -                      | -                       | 0.19                                   |                        | 2.0                   | 0.012                  |
| 7-11             | Beet Tops      |                       |  |                        |                         |  |                        |                       |                        |
| 7-11             | Beet Roots     |                       | 3.6                                      | -                      | 0.13                    | 1.5                                    |                        | 4.8                   |                        |
| 7-15             | Apricots       | 0.44                  | 1.3                                      | -                      | 0.07                    | 0.5                                    | -                      | 3.2                   | 0.007                  |
| 7-15             | Apples         | -                     | 0.6                                      | -                      | -                       | 0.16                                   | -                      | 1.5                   | 0.045                  |
| 7-31             | Beans          | 0.37                  | -  | 0.06                   | -                       | -                                      | 0.16                   | 3.0                   | 0.018                  |
| 7-31             | Peaches        | -                     | -  | -                      | -                       | 0.19                                   | -                      | 1.6                   | 0.011                  |
| 7-31             | Apricots       | 0.11                  | 1.2                                      | -                      | 0.06                    | 0.45                                   | 0.21                   | 2.9                   | 0.038                  |
| 8-1              | Apricots       | -                     | -  | -                      | 0.14                    | 0.4                                    |                        | 2.4                   | 0.012                  |
| 8-1              | Prunes         | -                     | -  | -                      | -                       | 0.05                                   |                        | 1.5                   | 0.012                  |
| 8-1              | Potatoes       | -                     | -  | -                      | 0.05                    | 0.14                                   |                        | 5.6                   | 0.012                  |
| 8-1              | Apricots       | -                     | -  | -                      | 0.04                    | 0.14                                   |                        | 3.2                   | 0.012                  |
| 8-1              | String beans   | -                     | -  | -                      | 0.19                    | 0.51                                   |                        | 0.8                   | 0.012                  |
| 8-1              | Berries        | -                     | -  | -                      | -                       |  | 1.3                    | 1.8                   | 0.012                  |
| 8-1              | Cucumbers      | 1.0                   | 0.1                                      | -                      | -                       |  |                        | 3.9                   | 0.012                  |
| 8-1              | Sweet Corn     | 1.0                   | -  | -                      | -                       | 0.36                                   |                        | 1.3                   | 0.012                  |
| 8-1              | Apples         | -                     | -  | -                      | 0.05                    | 0.11                                   |                        | 2.6                   | 0.039                  |
| 8-1              | Green Beans    | 0.6                   | -  | -                      | -                       |  |                        | 3.5                   | 0.039                  |
| 8-1              | Turnips        | 2.0                   | -  | -                      | -                       | 0.57                                   |                        | 2.0                   | 0.039                  |
| 8-1              | Cucumbers      | -                     | -  | -                      | -                       |  |                        |                       |                        |
| 8-1              | Okra           |                       |  |                        |                         |  |                        |                       |                        |
| 8-1              | Parsley        | 3.3                   | -  | 0.34                   | 1.4                     | 0.66                                   | 10.5                   | 0.039                 |                        |
| 8-1              | Squash         | -                     | 0.12                                     | -                      | -                       |  | 7.3                    | 0.039                 |                        |
| 8-1              | Sweet Corn     | -                     | -  | -                      | -                       |  | 3.2                    | 0.039                 |                        |
| 8-1              | Beets          | -                     | -  | 0.14                   | 0.81                    |  | 4.2                    | 0.039                 |                        |
| 8-1              | Lettuce        | -                     | -  | -                      | -                       |  | 4.3                    | 0.039                 |                        |
| 8-1              | Radishes       | -                     | -  | 0.05                   | 0.18                    |  | 3.4                    | 0.039                 |                        |
| 8-1              | Apricots       | -                     | -  | 0.03                   | 0.09                    | 0.11                                   | 2.3                    | 0.039                 |                        |
| 9-12             | Peaches        | 0.3                   | -  | -                      | -                       |  | 2.5                    | 0.010                 |                        |

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

No entry indicates no analysis made.

APPENDIX C  
TABLE 5

CONCENTRATION OF RADIONUCLIDES IN FOOD PURCHASED FROM LOCAL STORES - 1963

Units of pc/g

| Date              | Product       | Ce <sup>144</sup><br>-Pr <sup>144</sup> | I <sup>131</sup> | Cs <sup>137</sup> | Zr <sup>95</sup><br>-Nb <sup>95</sup> | Zn <sup>65</sup> | K <sup>40</sup> | Sr <sup>90</sup> |
|-------------------|---------------|---|------------------|-------------------|---------------------------------------|------------------|-----------------|------------------|
| Reporting Limits* |               | 0.5                                     | 0.05             | 0.03              | 0.05                                  | 0.08             | 0.4             | 0.002            |
| 6-12              | Lettuce       | 0.8                                     | 0.05             | -                 | -                                     | -                | 3.0             | 0.003            |
| 6-12              | Beet Tops     | 4.4                                     | -                | 0.34              | 2.9                                   | -                | 4.5             | -                |
| 6-12              | Beet Roots    | -                                       | -                | -                 | 0.16                                  | -                | 2.6             | 0.018            |
| 6-12              | Radishes      | 0.8                                     | -                | -                 | 0.08                                  | -                | 2.2             | 0.017            |
| 6-12              | Rhubarb       | -                                       | -                | 0.04              | 0.11                                  | -                | 2.9             | 0.025            |
| 6-12              | Asparagus     | -                                       | -                | 0.03              | -                                     | -                | 2.7             | 0.003            |
| 8-1               | Cucumbers     | 0.5                                     | -                | -                 | -                                     | -                | 2.0             | 0.013            |
| 8-1               | Beet Roots    | 0.7                                     | 0.10             | -                 | -                                     | -                | 4.0             | 0.013            |
| 8-1               | Beet Tops     | 2.2                                     | -                | -                 | 2.4                                   | -                | 8.3             | 0.013            |
| 8-1               | Carrots       | -                                       | 0.08             | -                 | -                                     | -                | 2.9             | 0.013            |
| 8-1               | Peaches       | -                                       | 0.05             | -                 | -                                     | -                | 1.8             | 0.013            |
| 8-1               | Potatoes      | -                                       | -                | -                 | -                                     | 0.13             | 4.3             | 0.013            |
| 8-1               | Green Peppers | 1.3                                     | 0.22             | -                 | -                                     | -                | 2.1             | 0.013            |
| 8-1               | Radishes      | -                                       | -                | -                 | 0.10                                  | -                | 2.6             | 0.013            |
| 8-1               | Celery        | -                                       | 0.24             | -                 | -                                     | -                | 6.1             | 0.013            |
| 8-1               | Cabbage       | 0.9                                     | 0.20             | -                 | -                                     | -                | 2.8             | 0.013            |
| 8-1               | Plums         | -                                       | -                | -                 | -                                     | -                | 1.4             | 0.013            |
| 8-1               | String Beans  | -                                       | -                | -                 | 0.1                                   | -                | 2.5             | 0.013            |
| 8-1               | Green Onions  | 3.6                                     | 0.35             | 0.08              | 0.15                                  | 0.10             | 5.1             | 0.013            |
| 8-1               | Apples        | -                                       | -                | -                 | -                                     | -                | 1.2             | -                |
| 8-1               | Sweet Corn    | -                                       | -                | -                 | -                                     | -                | 2.4             | -                |
| 8-1               | Endive        | -                                       | 0.43             | -                 | 0.24                                  | -                | 2.4             | -                |
| 8-1               | Tomatoes      | -                                       | 0.05             | -                 | -                                     | -                | 2.0             | -                |
| 8-1               | Blueberries   | 0.7                                     | -                | 0.06              | 0.46                                  | -                | 0.5             | -                |
| 8-1               | Romaine       | -                                       | 0.15             | -                 | 0.11                                  | -                | 3.1             | -                |

\*Results less than reporting limits are indicated by a (-).

No entry indicates no analysis made.

APPENDIX C  
TABLE 5 (Continued)

CONCENTRATION OF RADIONUCLIDES IN FOOD PURCHASED FROM LOCAL STORES - 1963

Units of pc/g

| <u>Date</u>       | <u>Product</u> | <u>Ce<sup>144</sup></u><br><u>-Pr<sup>144</sup></u> | <u>I<sup>131</sup></u> | <u>Cs<sup>137</sup></u> | <u>Zr<sup>95</sup></u><br><u>-Nb<sup>95</sup></u> | <u>Zn<sup>65</sup></u> | <u>K<sup>40</sup></u> | <u>Sr<sup>90</sup></u> |
|-------------------|----------------|---|------------------------|-------------------------|---|------------------------|-----------------------|------------------------|
| Reporting Limits* |                | 0.5   | 0.05                   | 0.03                    | 0.05  | 0.08                   | 0.4                   | 0.002                  |
| 8-1               | Strawberries   | 0.5   | -                      | -                       | 0.019   | -                      | 1.2                   |                        |
| 8-1               | Grapes         | -   | 0.08                   | -                       | -   | -                      | 1.9                   |                        |
| 8-1               | Apricots       | 0.9   | 0.07                   | 0.04                    | 0.20  | -                      | 2.5                   |                        |
| 8-1               | Head Lettuce   | 0.5   | 0.07                   | 0.04                    | -   | 0.22                   | 2.0                   |                        |

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APPENDIX C  
TABLE 6

CONCENTRATION OF RADIONUCLIDES IN OYSTERS FROM  
WILLAPA BAY, WASHINGTON - 1963

| <u>Date</u>          | Units of pc/g         |                        |                         |                       |                        |                        |
|----------------------|-----------------------|------------------------|-------------------------|-----------------------|------------------------|------------------------|
|                      | <u>K<sup>40</sup></u> | <u>Zn<sup>65</sup></u> | <u>Cs<sup>137</sup></u> | <u>P<sup>32</sup></u> | <u>Co<sup>58</sup></u> | <u>Co<sup>60</sup></u> |
| Reporting<br>Limits* | 0.3                   | 0.1                    | 0.03                    | 0.1                   | 0.7                    | 0.6                    |
| 1-8                  | 5.6                   | 46                     |                         | 1.9                   |                        |                        |
| 1-23                 | 21                    | 82                     |                         | 2.2                   |                        |                        |
| 2-7                  | 1.7                   | 22                     | 0.12                    | 2.1                   | -                      |                        |
| 2-19                 | 24                    | 120                    | -                       | 3.1                   | -                      |                        |
| 3-6                  | 2.3                   | 73                     | -                       | 1.4                   | -                      |                        |
| 3-20                 | 24                    | 69                     | 2.6                     | 2.4                   | 2.9                    | -                      |
| 4-3                  | 27                    | 78                     | 0.63                    | < 1.6                 | 1.0                    | -                      |
| 4-17                 | -                     | 66                     | 0.24                    | 5.7                   | -                      |                        |
| 5-1                  | 25                    | 78                     | 0.58                    | 10                    | 0.87                   | -                      |
| 5-14                 | 3.6                   | 84                     | 0.43                    | 14                    | 0.77                   | -                      |
| 5-28                 | 1.7                   | 99                     | 0.52                    | 5.9                   | -                      |                        |
| 6-12                 | 0.94                  | 86                     | 0.50                    | 7.8                   | 0.82                   | -                      |
| 6-26                 | 1.4                   | 76                     |                         | 7.1                   | -                      |                        |
| 7-9                  | 3.9                   | 58                     | 0.49                    | 8.0                   | 0.71                   | -                      |
| 7-24                 | 0.57                  | 74                     | 0.61                    | 7.1                   | -                      |                        |
| 8-7                  | 1.9                   | 87                     | -                       | 3.6                   | -                      |                        |
| 8-21                 | 1.5                   | 74                     | -                       | 2.2                   | -                      |                        |
| 9-5                  | 2.4                   | 130                    | -                       | 2.6                   | -                      |                        |
| 9-19                 | 2.5                   | 58                     | -                       | 1.8                   | -                      |                        |
| 10-1                 | 2.6                   | 92                     | 0.12                    | 1.7                   | -                      |                        |
| 10-15                | 3.4                   | 82                     | -                       | 0.88                  | -                      |                        |
| 10-30                | 2.1                   | 90                     | -                       | 0.60                  | -                      |                        |
| 11-14                | 4.4                   | 84                     | -                       | < 3.0                 | -                      |                        |
| 12-3                 | 0.66                  | 87                     | -                       | < 1.9                 | -                      |                        |
| 12-12                | 2.2                   | 93                     | -                       | < 1.4                 | -                      |                        |
| 12-23                | 2.0                   | 86                     | -                       | 2.2                   | -                      |                        |

\*Results less than the reporting limit are indicated by a (-).  
No entry indicates no analysis made.

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X. APPENDIX D

EXTERNAL RADIATION EXPOSURE RESULTS

APPENDIX D  
TABLE 1

IONIZATION CHAMBER MEASUREMENTS  
FOR THE HANFORD RESERVATION AND RICHLAND - 1963

| Measurement<br>Period | mr/day  |          | Measurement<br>Period | mr/day  |          |
|-----------------------|---------|----------|-----------------------|---------|----------|
|                       | Hanford | Richland |                       | Hanford | Richland |
| 12/31/62-1/2/63       | 0.53    | 0.58     | 3/1-3/4               | 0.44    | 0.40     |
| 1/2-1/4               | 0.60    | 0.92     | 3/4-3/6               | 0.39    | 0.42     |
| 1/4-1/7               | 0.69    | 0.66     | 3/6-3/8               | 0.44    | 0.44     |
| 1/7-1/9               | 0.67    | 0.64     | 3/8-3/11              | 0.42    | 0.41     |
| 1/9-1/11              | 0.68    | 0.60     | 3/11-3/13             | 0.43    | 0.37     |
| 1/11-1/14             | 0.50    | 0.42     | 3/13-3/15             | 0.38    | 0.33     |
| 1/14-1/16             | 0.55    | 0.47     | 3/15-3/18             | 0.40    | 0.37     |
| 1/16-1/18             | 0.55    | 0.46     | 3/18-3/20             | 0.35    | 0.37     |
| 1/18-1/21             | 0.48    | 0.41     | 3/20-3/22             | 0.41    | 0.37     |
| 1/21-1/23             | 0.48    | 0.43     | 3/22-3/25             | 0.41    | 0.39     |
| 1/23-1/25             | 0.46    | 0.47     | 3/25-3/27             | 0.36    | 0.32     |
| 1/25-1/28             | 0.45    | 0.45     | 3/27-3/29             | 0.42    | 0.39     |
| 1/28-1/30             | 0.50    | 0.57     | 3/29-4/1              | 0.41    | 0.41     |
| 1/30-2/1              | 0.40    | 0.37     | 4/1-4/3               | 0.45    | 0.44     |
| 2/1-2/4               | 0.39    | 0.39     | 4/3-4/5               | 0.43    | 0.40     |
| 2/4-2/6               | 0.42    | 0.39     | 4/5-4/8               | 0.38    | 0.40     |
| 2/6-2/8               | 0.43    | 0.44     | 4/8-4/10              | 0.42    | 0.38     |
| 2/8-2/11              | 0.45    | 0.45     | 4/10-4/12             | 0.39    | 0.40     |
| 2/11-2/13             | 0.46    | 0.45     | 4/12-4/15             | 0.47    | 0.39     |
| 2/13-2/15             | 0.42    | 0.43     | 4/15-4/17             | 0.40    | 0.44     |
| 2/15-2/18             | 0.46    | 0.49     | 4/17-4/19             | 0.43    | 0.39     |
| 2/18-2/20             | 0.41    | 0.41     | 4/19-4/22             | 0.42    | 0.43     |
| 2/20-2/23             | 0.44    | 0.43     | 4/22-4/24             | 0.48    | 0.33     |
| 2/23-2/25             | 0.44    | 0.41     | 4/24-4/26             | 0.48    | 0.36     |
| 2/25-2/27             | 0.37    | 0.35     | 4/26-4/29             | 0.48    | 0.39     |
| 2/27-3/1              | 0.37    | 0.36     | 4/29-5/1              | 0.47    | 0.47     |

APPENDIX D  
TABLE 1 (Continued)

IONIZATION CHAMBER MEASUREMENTS  
FOR THE HANFORD PRESERVATION AND RICHLAND - 1963

| Measurement<br>Period | mr/day  |          | Measurement<br>Period | mr/day  |          |
|-----------------------|---------|----------|-----------------------|---------|----------|
|                       | Hanford | Richland |                       | Hanford | Richland |
| 5/1-5/3               | 0.44    | 0.31     | 7/1-7/3               | 0.70    | 0.66     |
| 5/3-4/6               | 0.44    | 0.48     | 7/3-7/5               | 0.59    | 0.73     |
| 5/6-5/8               | 0.45    | 0.40     | 7/5-7/8               | 0.71    | 0.68     |
| 5/8-5/10              | 0.45    | 0.52     | 7/8-7/10              | 0.77    | 0.95     |
| 5/10-5/13             | 0.52    | 0.46     | 7/10-7/12             | 0.61    | 0.58     |
| 5/13-5/15             | 0.50    | 0.48     | 7/12-7/15             | 0.51    | 0.61     |
| 5/15-5/17             | 0.50    | 0.45     | 7/15-7/17             | 0.59    | 0.52     |
| 5/17-5/20             | 0.48    | 0.54     | 7/17-7/19             | 0.50    | 0.52     |
| 5/20-5/22             | 0.50    | 0.48     | 7/19-7/22             | 0.56    | 0.52     |
| 5/22-5/24             | 0.47    | 0.50     | 7/22-7/24             | 0.55    | 0.53     |
| 5/24-5/27             | 0.50    | 0.50     | 7/24-7/26             | 0.51    | 0.50     |
| 5/27-5/29             | 0.41    | 0.51     | 7/26-7/29             | 0.50    |          |
| 5/29-5/31             | 0.47    | 0.48     | 7/29-7/31             | 0.56    |          |
| 5/31-6/3              | 0.48    | 0.52     | 7/31-8/2              | 0.49    | 0.57     |
| 6/3-6/5               | 0.49    | 0.48     | 8/2-8/5               | 0.58    | 0.52     |
| 6/5-6/7               | 0.43    | 0.42     | 8/5-8/7               | 0.48    | 0.45     |
| 6/7-6/10              | 0.49    | 0.51     | 8/7-8/9               | 0.59    | 0.51     |
| 6/10-6/12             | 0.48    | 0.48     | 8/9-8/12              | 0.50    | 0.56     |
| 6/12-6/14             | 0.51    | 0.46     | 8/12-8/14             | 0.51    | 0.51     |
| 6/14-6/18             | 0.43    | 0.48     | 8/14-8/16             | 0.41    | 0.55     |
| 6/18-6/19             | 0.44    | 0.47     | 8/16-8/19             | 0.41    | 0.54     |
| 6/19-6/21             | 0.40    | 0.44     | 8/19-8/21             | 0.48    | 0.47     |
| 6/21-6/24             | 0.67    | 0.64     | 8/21-8/23             | 0.44    | 0.51     |
| 6/24-6/26             | 0.52    | 0.60     | 8/23-8/26             | 0.55    | 0.53     |
| 6/26-6/28             | 0.67    | 0.61     | 8/26-8/28             | 0.45    | 0.50     |
| 6/28-7/1              | 0.63    | 0.65     | 8/28-8/30             | 0.55    |          |

No entry indicates no reading.

APPENDIX D  
TABLE 1 (Continued)

IONIZATION CHAMBER MEASUREMENTS  
FOR THE HANFORD RESERVATION AND RICHLAND -1963

| <u>Measurement Period</u> | <u>mr/day</u>  |                 | <u>Measurement Period</u> | <u>mr/day</u>  |                 |
|---------------------------|----------------|-----------------|---------------------------|----------------|-----------------|
|                           | <u>Hanford</u> | <u>Richland</u> |                           | <u>Hanford</u> | <u>Richland</u> |
| 9/3-9/4                   | 0.43           | 0.45            | 11/1-11/4                 | 0.56           | 0.55            |
| 9/4-9/6                   | 0.54           | 0.51            | 11/4-11/6                 | 0.46           | 0.46            |
| 9/6-9/9                   | 0.47           | 0.52            | 11/6-11/8                 | 0.46           | 0.46            |
| 9/9-9/11                  | 0.50           | 0.51            | 11/8-11/11                | 0.46           | 0.49            |
| 9/11-9/13                 | 0.43           | 0.56            | 11/11-11/13               | 0.54           | 0.51            |
| 9/13-9/16                 | 0.54           | 0.54            | 11/13-11/15               | 0.52           | 0.53            |
| 9/16-9/18                 | 0.48           | 0.53            | 11/15-11/18               | 0.48           | 0.49            |
| 9/18-9/20                 | 0.52           | 0.52            | 11/18-11/20               | 0.47           | 0.48            |
| 9/20-9/23                 | 0.50           | 0.57            | 11/20-11/22               | 0.56           | 0.50            |
| 9/23-9/25                 | 0.51           | 0.55            | 11/22-11/26               | 0.46           | 0.48            |
| 9/25-9/27                 | 0.52           | 0.54            | 11/26-11/27               |                | 0.54            |
| 9/27-9/30                 | 0.53           | 0.51            | 12/2-12/4                 | 0.57           | 0.51            |
| 9/30-10/2                 | 0.43           | 0.48            | 12/4-12/6                 | 0.47           | 0.49            |
| 10/2-10/4                 | 0.45           | 0.48            | 12/6-12/9                 | 0.47           | 0.48            |
| 10/4-10/7                 | 0.45           | 0.49            | 12/9-12/11                | 0.39           | 0.47            |
| 10/7-10/9                 | 0.49           | 0.50            | 12/11-12/13               | 0.47           | 0.49            |
| 10/9-10/11                | 0.46           | 0.50            | 12/13-12/16               | 0.46           | 0.50            |
| 10/11-10/14               | 0.48           | 0.48            | 12/16-12/18               | 0.41           | 0.44            |
| 10/14-10/16               |                | 0.52            | 12/18-12/20               | 0.41           | 0.47            |
| 10/16-10/18               | 0.49           | 0.53            | 12/20-12/23               | 0.48           | 0.48            |
| 10/18-10/21               | 0.52           | 0.52            | 12/23-12/26               | 0.53           |                 |
| 10/21-10/23               | 0.41           | 0.44            | 12/23-12/27               |                | 0.24            |
| 10/23-10/25               | 0.44           |                 | 12/26-12/30               | 0.49           |                 |
| 10/25-10/28               | 0.52           | 0.52            | 12/27-12/30               |                | 0.47            |
| 10/28-10/30               | 0.51           | 0.50            | 12/30-12/31               | 0.49           | 0.49            |
| 10/30-11/1                | 0.53           | 0.53            |                           |                |                 |

No entry indicates no reading.

APPENDIX D  
TABLE 2

IONIZATION CHAMBER MEASUREMENTS  
OF IMMERSION DOSE IN THE COLUMBIA RIVER - 1963

| <u>Measurement Period</u> | <u>Mr/Day</u> | <u>Measurement Period</u> | <u>Mr/Day</u> | <u>Measurement Period</u> | <u>Mr/Day</u> |
|---------------------------|---------------|---------------------------|---------------|---------------------------|---------------|
| <u>Vernita Ferry</u>      |               |                           |               |                           |               |
| 12/28/62-1/4/63           | 0.79          | 3/8-3/15                  | 0.10          | 5/10-5/17                 | 0.28          |
| 1/4-1/11                  | 0.57          | 3/15-3/22                 | 0.47          | 5/17-5/22                 | 0.14          |
| 1/11-1/25                 | 0.05          | 3/22-3/29                 | 0.13          | 8/21-8/28                 | 0.38          |
| 1/25-2/1                  | Lost          | 3/29-4/5                  | 0.11          | 8/28-9/11                 | 0.36          |
| 2/1-2/8                   | 0.80          | 4/5-4/12                  | 0.31          | 9/11-9/26                 | 0.31          |
| 2/8-2/15                  | 0.48          | 4/12-4/19                 | 0.42          | 9/26-10/9                 | 0.79          |
| 2/15-2/21                 | 0.21          | 4/19-4/26                 | 0.16          | 10/9-10/16                | 0.41          |
| 2/21-3/1                  | 0.19          | 4/26-5/3                  | 0.21          | 10/16-10/23               | 0.25          |
| 3/1-3/8                   | 0.47          | 5/3-5/10                  | 0.15          | 10/23-10/30               | 0.73          |
| <u>Hanford Ferry</u>      |               |                           |               |                           |               |
| 12/28/62-1/4/63           | -             | 4/26-4/30                 | Lost          | 9/3-9/6                   | 6.3           |
| 1/4-1/8                   | 5.0           | 4/30-5/3                  | 8.4           | 9/6-9/10                  | 4.5           |
| 1/8-1/11                  | 2.9           | 5/3-5/10                  | 2.6           | 9/10-9/13                 | 3.9           |
| 1/11-1/15                 | 3.8           | 5/10-5/14                 | 6.4           | 9/13-9/17                 | 5.7           |
| 1/15-1/18                 | 4.9           | 5/14-5/17                 | 7.4           | 9/17-9/20                 | Lost          |
| 1/18-1/22                 | 5.1           | 5/17-5/21                 | 7.9           | 9/20-9/24                 | 9.9           |
| 1/22-1/25                 | 7.7           | 5/21-5/24                 | Lost          | 9/24-9/27                 | 5.8           |
| 1/25-2/1                  | 4.7           | 5/24-5/28                 | 6.3           | 9/27-10/1                 | 2.7           |
| 2/1-2/5                   | 6.4           | 5/28-6/4                  | 3.2           | 10/1-10/4                 | 5.2           |
| 2/5-2/8                   | 5.2           | 6/4-6/7                   | 1.8           | 10/4-10/8                 | 6.1           |
| 2/8-2/12                  | 7.5           | 6/7-6/11                  | 1.7           | 10/8-10/11                | 4.8           |
| 2/12-2/15                 | 7.2           | 6/11-6/14                 | 1.9           | 10/11-10/15               | 4.6           |
| 2/15-2/19                 | 6.4           | 6/14-6/18                 | 1.3           | 10/15-10/18               | 6.4           |
| 2/19-2/21                 | 3.8           | 6/18-6/21                 | 1.4           | 10/18-10/22               | 8.3           |
| 2/21-2/26                 | 5.8           | 6/21-6/25                 | 2.1           | 10/22-10/25               | 7.8           |
| 2/26-3/1                  | 4.7           | 6/25-6/28                 | 2.8           | 10/25-10/29               | 8.0           |
| 3/1-3/5                   | 6.8           | 6/28-7/2                  | 7.8           | 10/29-11/1                | 5.5           |
| 3/5-3/8                   | 6.1           | 7/2-7/5                   | 8.8           | 11/1-11/6                 | 7.7           |
| 3/8-3/11                  | 9.7           | 7/5-7/9                   | 7.6           | 11/6-11/8                 | 4.4           |
| 3/11-3/15                 | 6.6           | 7/9-7/12                  | 7.9           | 11/8-11/12                | 5.1           |
| 3/15-3/18                 | 7.2           | 7/12-7/16                 | 7.3           | 11/12-11/15               | 7.0           |
| 3/18-3/22                 | 8.1           | 7/16-7/19                 | 4.6           | 11/15-11/19               | 7.3           |
| 3/22-3/26                 | 11            | 7/19-7/26                 | 6.9           | 11/19-11/22               | 5.1           |
| 3/26-3/29                 | 11            | 7/26-7/27                 | 7.6           | 11/22-11/27               | 6.9           |
| 3/29-4/2                  | 7.9           | 8/2-8/9                   | 6.4           | 11/27-12/3                | 8.5           |
| 4/2-4/5                   | 9.6           | 8/9-8/13                  | 6.1           | 12/3-12/6                 | 5.4           |
| 4/5-4/9                   | 10            | 8/13-8/16                 | 6.9           | 12/6-12/10                | 6.4           |
| 4/9-4/12                  | 7.6           | 8/16-8/20                 | 7.6           | 12/10-12/13               | 5.6           |
| 4/12-4/16                 | 10            | 8/20-8/23                 | 4.4           | 12/13-12/17               | 5.1           |
| 4/16-4/19                 | 7.8           | 8/23-8/27                 | 6.6           | 12/17-12/20               | 6.8           |
| 4/19-4/23                 | Lost          | 8/27-8/30                 | 7.1           | 12/20-12/27               | 6.6           |
| 4/23-4/26                 | 12            | 8/30-9/3                  | 6.3           | 12/27-12/31               | 7.0           |

APPENDIX D  
TABLE 2 (Continued)

IONIZATION CHAMBER MEASUREMENTS  
OF IMMERSION DOSE IN THE COLUMBIA RIVER - 1963

| <u>Measurement Period</u> | <u>Mr./Day</u> | <u>Measurement Period</u> | <u>Mr./Day</u> | <u>Measurement Period</u> | <u>Mr./Day</u> |
|---------------------------|----------------|---------------------------|----------------|---------------------------|----------------|
| <u>300 Area Dock</u>      |                |                           |                |                           |                |
| 12/28/62-1/4/63           | 3.7            | 5/3-5/10                  | 2.8            | 8/30-9/6                  | 3.5            |
| 1/4-1/11                  | 3.1            | 5/10-5/17                 | 2.7            | 9/6-9/13                  | 3.7            |
| 1/11-1/18                 | 2.7            | 5/17-5/24                 | 2.5            | 9/13-9/20                 | 3.9            |
| 1/18-1/25                 | 3.2            | 5/24-5/31                 | 2.4            | 9/20-9/27                 | 3.7            |
| 1/25-2/1                  | 3.2            | 5/31-6/7                  | 1.7            | 9/27-10/4                 | 3.3            |
| 2/1-2/8                   | 3.2            | 6/7-6/14                  | 2.1            | 10/4-10/11                | 3.7            |
| 2/8-2/15                  | 3.1            | 6/14-6/21                 | 2.1            | 10/11-10/18               | 4.1            |
| 2/15-2/21                 | 2.4            | 6/21-6/28                 | 2.8            | 10/18-10/25               | 5.0            |
| 2/21-3/1                  | 3.4            | 6/28-7/5                  | 3.9            | 10/25-11/1                | Lost           |
| 3/1-3/8                   | 5.1            | 7/5-7/12                  | 2.9            | 11/1-11/8                 | 3.6            |
| 3/8-3/15                  | 4.9            | 7/12-7/19                 | 2.3            | 11/8-11/15                | 3.2            |
| 3/15-3/22                 | 5.7            | 7/19-7/26                 | 2.9            | 11/15-11/22               | 3.5            |
| 3/22-3/29                 | 4.0            | 7/26-8/2                  | 3.3            | 11/22-12/6                | 3.8            |
| 3/29-4/5                  | 5.3            | 8/2-8/9                   | 2.6            | 12/6-12/13                | 4.8            |
| 4/5-4/12                  | 4.6            | 8/9-8/16                  | 2.9            | 12/13-12/20               | 3.8            |
| 4/12-4/19                 | 5.4            | 8/16-8/23                 | 2.5            | 12/20-12/27               | 4.6            |
| 4/19-4/26                 | 4.5            | 8/23-8/30                 | 1.7            | 12/27-1/8/64              | 4.4            |
| 4/26-5/3                  | 1.6            |                           |                |                           |                |
| <u>Pasco Pump House</u>   |                |                           |                |                           |                |
| 12/28/62-1/4/63           | 1.2            | 4/12-4/26                 | Lost           | 8/9-8/16                  | 1.6            |
| 1/4-1/11                  | 1.3            | 4/26-5/10                 | 2.4            | 8/16-8/23                 | 1.4            |
| 1/11-1/18                 | 1.0            | 5/3-5/10                  | 1.1            | 8/23-8/30                 | 0.49           |
| 1/18-1/25                 | 1.4            | 5/10-5/17                 | 1.4            | 8/30-9/3                  | 3.7            |
| 1/25-2/1                  | 1.2            | 5/17-5/24                 | 1.1            | 9/3-9/5                   | 1.9            |
| 2/1-2/8                   | 1.3            | 5/24-5/31                 | 1.1            | 9/5-9/13                  | 1.5            |
| 2/8-2/15                  | Missing        | 5/31-6/7                  | 0.64           | 9/13-9/27                 | 1.7            |
| 2/15-2/21                 | 0.65           | 6/7-6/14                  | 0.53           | 9/27-10/4                 | 1.9            |
| 2/21-3/1                  | 0.89           | 6/14-6/21                 | 0.99           | 10/4-10/11                | 1.7            |
| 3/1-3/8                   | 0.83           | 6/21-6/28                 | 0.87           | 10/11-10/18               | 1.8            |
| 3/8-3/15                  | 1.4            | 6/28-7/5                  | 0.40           | 10/18-10/25               | 5.7            |
| 3/15-3/22                 | 1.6            | 7/5-7/12                  | 1.1            | 10/25-11/1                | Missing        |
| 3/22-3/29                 | 1.7            | 7/12-7/19                 | 0.96           | 11/1-11/8                 | 1.5            |
| 3/29-4/5                  | 1.4            | 7/19-8/2                  | 1.6            | 11/8-11/15                | 1.4            |
| 4/5-4/12                  | 1.3            | 8/2-8/9                   | 1.2            | 11/15-11/22               | 1.7            |

APPENDIX D  
TABLE 2 (Continued)

IONIZATION CHAMBER MEASUREMENTS  
OF IMMERSION DOSE IN THE COLUMBIA RIVER - 1963

| <u>Measurement Period</u>   | <u>Mr./Day</u> | <u>Measurement Period</u> | <u>Mr./Day</u> | <u>Measurement Period</u> | <u>Mr./Day</u> |
|-----------------------------|----------------|---------------------------|----------------|---------------------------|----------------|
| <u>Columbia Park Marina</u> |                |                           |                |                           |                |
| 12/28/62-1/4/63             | 0.39           | 5/17-5/24                 | Lost           | 9/6-9/13                  | 0.55           |
| 1/4-1/11                    | 0.68           | 5/24-5/29                 | 0.88           | 9/13-9/20                 | 0.47           |
| 1/11-2/1                    | Lost           | 5/29-6/7                  | 0.92           | 9/20-9/27                 | 0.43           |
| 2/1-2/8                     | 2.4            | 6/7-6/14                  | Lost           | 9/27-10/4                 | 0.53           |
| 2/8-2/15                    | 0.43           | 6/14-6/21                 | 0.26           | 10/4-10/11                | 0.67           |
| 2/15-2/21                   | 0.58           | 6/21-6/28                 | 0.07           | 10/11-10/18               | 1.1            |
| 2/21-3/1                    | 0.42           | 6/28-7/5                  | 0.25           | 10/18-10/25               | Lost           |
| 3/1-3/8                     | 0.57           | 7/5-7/12                  | 0.16           | 10/25-11/1                | 1.8            |
| 3/8-3/15                    | 0.44           | 7/12-7/19                 | 0.37           | 11/1-11/8                 | 0.91           |
| 3/15-3/22                   | 0.62           | 7/19-7/26                 | 0.15           | 11/8-11/15                | 1.2            |
| 3/22-3/29                   | 1.3            | 7/26-8/2                  | 0.62           | 11/15-11/22               | 0.82           |
| 3/29-4/5                    | 0.98           | 8/2-8/9                   | 0.41           | 11/22-12/6                | 1.8            |
| 4/5-4/12                    | 0.93           | 8/9-8/16                  | 0.61           | 12/6-12/13                | 0.97           |
| 4/12-4/26                   | Lost           | 8/16-8/23                 | 0.51           | 12/13-12/20               | 1.6            |
| 4/26-5/3                    | 0.87           | 8/23-8/30                 | 0.54           | 12/20-12/27               | 0.88           |
| 5/3-5/10                    | 0.40           | 8/30-9/6                  | 0.50           | 12/27-1/10/64             | 1.3            |
| 5/10-5/17                   | 0.77           |                           |                |                           |                |
| <u>Richland Marina</u>      |                |                           |                |                           |                |
| 12/28/62-1/4/63             | 2.0            | 5/3-5/10                  | 1.8            | 8/30-9/6                  | 4.1            |
| 1/4-1/11                    | 2.1            | 5/10-5/17                 | 1.9            | 9/6-9/13                  | 2.6            |
| 1/11-1/18                   | 2.7            | 5/17-5/24                 | Lost           | 9/13-9/20                 | 2.9            |
| 1/18-1/25                   | 2.1            | 5/24-5/31                 | 2.0            | 9/20-9/27                 | 2.0            |
| 1/25-2/1                    | 3.0            | 5/31-6/7                  | 1.3            | 9/27-10/4                 | 1.4            |
| 2/1-2/8                     | 1.4            | 6/7-6/21                  | Lost           | 10/4-10/11                | 2.2            |
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XI. APPENDIX E

ANALYTICAL METHODS

## XI. APPENDIX E

### ANALYTICAL METHODS

#### 1. Water Analyses

Water samples are analyzed for alpha emitters, beta emitters, and selected radionuclides. Alpha emitters are extracted with diethyl ether from 9N nitric acid. The gross alpha activity is measured with a zinc sulfide (ZnS) scintillation counter. Gross beta activity is determined by evaporating a sample to dryness and counting the residual salts on a gas-flow proportional beta counter operated in the proportional region.

Rare earths plus Y, I<sup>131</sup>, P<sup>32</sup>, and Sr<sup>90</sup> are measured by beta counting after chemical separation. The rare earths are isolated as a group by hydroxide, fluoride, and oxalate precipitations; iodine is isolated by carbon tetrachloride extraction and precipitation as silver iodide; phosphorous by extraction of phosphomolybdate; and strontium by successive precipitation of the nitrate and the carbonate. Y<sup>90</sup> is separated from the strontium as the oxalate and ignited to the oxide after secular equilibrium is established and is then measured to determine Sr<sup>90</sup>. Beta decay curves are extrapolated to sampling time to determine the initial activity levels and to check separation effectiveness.

Sodium-24, Np<sup>239</sup>, Cr<sup>51</sup>, Cu<sup>64</sup>, and Sc<sup>46</sup> (used for Zn correction) are determined from a direct count of residual salts of an evaporated sample without chemical separation using a multichannel gamma energy spectrometer with a 3 by 3 in. thallium-activated sodium iodide [NaI(Tl)] scintillation crystal detector. Zinc-65 and Sc<sup>46</sup> are determined from counting plates previously used for Na<sup>24</sup> and Cu<sup>64</sup> determinations. The Sc<sup>46</sup> 0.89 and 1.12 Mev photons are counted by coincidence counting using two 3 in. NaI crystals and a Sc<sup>46</sup> reference sample for adjustments. Zn<sup>65</sup> is determined by counting with a 5 in. NaI crystal and using the scandium results for correction.

Copper-64 is determined from gamma-gamma coincidence counting measurement of the annihilation photons produced by positron emission. Sc<sup>46</sup>

is measured by gamma-gamma coincidence counting of the 0.885 and 1.12 Mev photons.

Arsenic-76 is determined by evaporation of 500 to 1000 ml of sample to 50 to 75 ml and then acidifying with 9N HCl. It is then extracted into benzene, back extracted into water and precipitated as the metal, dried, weighed and counted on a gas-flow proportional counter.

If uranium analyses are required, concentrations are determined with a fluorophotometer using standard techniques.

## 2. Vegetation and Produce Analyses

Samples of pasture grass and farm products, including milk, are analyzed with a multichannel energy spectrometer for selected nuclides. A weighed amount, approximately 250 to 300 g, of shredded samples are packed into a 16 oz counting jar and gamma scanned using a 9 in. diameter well type NaI (Tl) scintillation crystal. Background analysis includes the effects of the jar which contains minute amounts of radioactivity. Weighed amounts of sample are used for chemical separation. Analysis for  $I^{131}$  in milk is routinely accomplished with a detection capability of approximately 2 pc/l when 3 gal aliquots are used. Analyses are performed in the following manner:

Iodine carrier and sodium bisulfite are added to the sample and then deaerated by cautiously applying vacuum. The sample is passed through an ion exchange column (polyethylene cup 2-1/2 x 4-1/2 in.) containing 345 ml of Dowex 1 x 8, 20 to 50 mesh Cl form, at a flow rate of 100 ml per minute. The resin is rinsed thoroughly with distilled water and then washed into a 500 ml polyethylene bottle for counting in a 9 in. NaI (Tl) well crystal. Recoveries of 90% or better in the resin column have been accomplished with sample sizes up to 12 gal.

Analysis for radiostrontium is performed in the following manner: Barium and strontium carriers are added to weighed samples of produce and 1000 ml samples of milk. The produce samples are

then ashed at 500 to 550 C from 24 to 48 hours and the ash is then dissolved in nitric acid. The alkaline earths are precipitated from all samples as carbonates on addition of NaOH. Strontium and other alkaline earth metals are then precipitated with fuming nitric acid residual. Calcium is separated by washing with acetone. Strontium and remaining alkaline earths are dissolved and reprecipitated with fuming nitric acid. The rare earths are removed from an aqueous solution of the nitrates by a Fe(OH)<sub>3</sub> precipitation and barium is removed as the chromate. Strontium is precipitated as a carbonate and then dried in a 1 in. stainless steel counting dish to constant weight. The strontium mixture is counted from 10 minutes to 1 hour in a low background (anticoincidence) gas-flow proportional beta counter.

Sr<sup>90</sup> is allowed to reach secular equilibrium with its daughter, Y<sup>90</sup>, which is then extracted with buffered TTA. Y<sup>90</sup> is counted in the same manner as the strontium mixture. The Sr<sup>90</sup> content of the original sample is calculated from the Y<sup>90</sup> counting rate, and the Sr<sup>90</sup> content from the difference in counting rates of total strontium and Sr<sup>90</sup>.

The chemical separation for radiophosphorous is performed on samples of sufficient size to yield 40 to 50 mg of phosphorous:

The sample is dry ashed 24 hours at 500 C and the salts are dissolved with nitric acid. Phosphorous is precipitated from the acid solution as ammonium phosphomolybdate. The precipitate is dissolved in ammonium hydroxide, ammonium citrate is added to complex most of the remaining interfering elements, and the phosphorous is precipitated as magnesium ammonium phosphate. After dissolving the precipitate in hydrochloric acid, ammonium citrate is again added and phosphorous is reprecipitated with NH<sub>4</sub>OH as magnesium ammonium phosphate.

The precipitate is dried in a 1-1/2 in. stainless steel counting dish under heat lamps and counted in a low background gas-flow proportional beta counter.

### 3. Air Sample Analyses

Airborne concentrations of radioactive materials are measured principally by  $I^{131}$  scrubber samplers. These samplers consist of a calibrated, electrically-driven vacuum pump which draws 1.5 cfm of air through 1 liter of 0.05N NaOH 0.05N  $Na_2CO_3$  with 20 mg of  $I^-$  carrier. A balancing platform and siphon arrangement permits introduction of distilled water into the scrubber at a rate equal to the rate of evaporation. This water feeder helps maintain constant liquid head, air flow rates, and scrubber efficiency.

After 1 week of operation, the scrubber bottle is replaced and taken to the radiochemical analysis laboratory for determination of the  $I^{131}$  content. The analytical procedure used provides for the addition of an iodine carrier and bisulfite to the scrubber solution which is then acidified, the iodine precipitated with  $AgNO_3$  and filtered. The radiation from the  $I^{131}$  on the filter is measured by a gas proportional counter. Atmospheric concentrations of  $I^{131}$  are then calculated from these counting rates by applying factors for counter calibration, chemical recovery of the  $I^{131}$ , scrubber efficiency and the volume of air sampled.

Measurements for concentrations of radioactive particulates in the atmosphere are made by drawing 1.5 cfm of air through a 2 x 4 in. HV-70 filter paper with a vacuum pump. The filters are changed on either a daily or weekly schedule, allowed to decay for 48 hours, and then counted with a gas proportional counter for gross beta radioactivity. Selected filters are also counted with a ZnS scintillation counter for gross alpha radioactivity.

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| 1    | REYNOLDS ELECTRICAL AND ENGINEERING COMPANY, INC. | 1    | UNIVERSITY OF CALIFORNIA, LOS ANGELES            |
| 1    | ROCKY MOUNTAIN ARSENAL                            | 1    | UNIVERSITY OF CALIFORNIA, SAN FRANCISCO          |
| 1    | SANDIA CORPORATION, ALBUQUERQUE                   | 1    | UNIVERSITY OF CHICAGO, USAF RADIATION LABORATORY |
| 1    | SANDIA CORPORATION, LIVERMORE                     | 1    | UNIVERSITY OF HAWAII                             |
| 1    | SCHEECTADY NAVAL REACTORS OFFICE                  | 1    | UNIVERSITY OF PUERTO RICO                        |
| 1    | SCHOOL OF AEROSPACE MEDICINE                      | 1    | UNIVERSITY OF ROCHESTER                          |
| 1    | SECOND AIR FORCE (SAC)                            | 1    | UNIVERSITY OF TENNESSEE (UTA)                    |
| 1    | SOLON (LEONARD)                                   | 1    | UNIVERSITY OF UTAH                               |
| 1    | SPACE TECHNOLOGY LABORATORIES, INC. (NASA)        | 1    | UNIVERSITY OF WASHINGTON                         |
| 1    | STANFORD UNIVERSITY (SLAC)                        | 1    | WALTER REED ARMY MEDICAL CENTER                  |
| 1    | STRATEGIC AIR COMMAND                             | 1    | WAYNE STATE UNIVERSITY                           |
| 1    | SYLVANIA ELECTRIC PRODUCTS, INC.                  | 1    | WESTERN RESERVE UNIVERSITY                       |
| 1    | TENNESSEE VALLEY AUTHORITY                        | 2    | WESTINGHOUSE BETTIS ATOMIC POWER LABORATORY      |
| 1    | TODD SHipyards CORPORATION                        | 1    | WESTINGHOUSE ELECTRIC CORPORATION                |
| 1    | TULANE UNIVERSITY                                 | 1    | WESTINGHOUSE ELECTRIC CORPORATION (NASA)         |
| 2    | UNION CARBIDE CORPORATION (ORGDP)                 | 1    | WHITE SANDS MISSILE RANGE                        |
| 7    | UNION CARBIDE CORPORATION (CRNL)                  | 325  | DIVISION OF TECHNICAL INFORMATION EXTENSION      |
| 1    | UNION CARBIDE CORPORATION (PADI'CAH PLANT)        |      |  |