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Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

SUBJECT: 1999 Annual Radiological Environmental Operating Report

Enclosed are two copies of the 1999 Radiological Environmental Operating Report for Byron Station. This report contains the results of the radiological environmental and meteorological monitoring programs. The Radioactive Effluent Release Report was submitted under separate cover.

If you have any questions regarding this information, please contact Mr. B.J. Adams, Regulatory Assurance Manager, at (815) 234-5441, extension 2280.

Respectfully,

A handwritten signature in dark ink, appearing to read "Will Levis", with a stylized flourish at the end.

William Levis
Site Vice President
Byron Station

WL/SDR/as

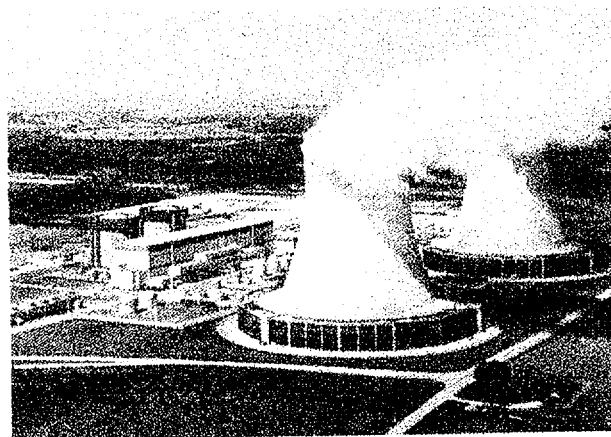
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cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Byron Station

1001

BYRON STATION
ANNUAL RADIOLOGICAL
ENVIRONMENTAL OPERATING
REPORT

1999



MAY 2000

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INTRODUCTION

Byron Station, a two-unit PWR station, is located about two miles east of the Rock River and approximately three miles southwest of Byron in Ogle County, north central Illinois. Each reactor is designed to have a capacity of 1120 MW net. Unit No. 1 loaded fuel in November 1984 and went on line February 2, 1985. Unit No. 2 went on line January 9, 1987. The station has been designed to keep releases to the environment at levels below those specified in the regulations.

Liquid effluents from Byron Station are released to the Rock River in controlled batches after radioassay of each batch. Gaseous effluents are released to the atmosphere and are calculated on the basis of analyses of weekly grab samples and grab samples of batch releases prior to the release of noble gases as well as continuously collected composite samples of iodine and particulate radioactivity sampled during the course of the year. The results of effluent analyses are summarized on a monthly basis. Airborne concentrations of noble gases, I-131, H-3 and particulate radioactivity in offsite areas are calculated using isotopic composition of effluents and meteorological data.

Environmental monitoring is conducted by sampling at indicator and control (background) locations in the vicinity of Byron Station to measure changes in radiation or radioactivity levels that may be attributable to station operation. If significant changes attributable to Byron Station are measured, these changes are correlated with effluent releases. External gamma radiation exposure from noble gases and internal dose from I-131 in milk are the critical pathways at this site; however, an environmental monitoring program is conducted which also includes other pathways.

SUMMARY

Calculations based on gaseous and liquid effluents, Rock River flow, and meteorological data indicate that public dose due to radioactive material attributable to Byron Station during the period does not exceed regulatory or Offsite Dose Calculation Manual (ODCM) limits.

The Total Effective Dose Equivalent (TEDE) due to licensed activities at Byron Station calculated for the maximally-exposed individual for the period is $1.09\text{E-}02$ mrem. The annual limit on TEDE is 100 mrem.

The assessment of radiation doses to the public is performed in accordance with the ODCM. The results of these analyses confirm that the Station is operating in compliance with 10CFR50 Appendix I, 10CFR20 and 40CFR190.

There were no additional operational controls implemented which affected the areas of radiological effluents in 1999.

There were no measurements which exceeded the reporting levels, including any which would not have been attributable to station effluents.

The results of the current radiological environmental monitoring program are approximately the same as those found during the pre-operational studies conducted at Byron Station.

1.0 EFFLUENTS

1.1 Gaseous Effluents to the Atmosphere

Measured concentrations and isotopic composition of noble gases, radioiodine, tritium and particulate radioactivity released to the atmosphere during the year are listed in Table 1.1-1.

A total of 1.06E+00 curies of fission and activation gases was released with a maximum quarterly release rate of 9.80E+00 $\mu\text{Ci/sec}$, for both units.

A total of 1.74E-05 curies of I-131 and I-133 was released during the year with a maximum quarterly average release rate of 1.93E-06 $\mu\text{Ci/sec}$.

A total of 1.38E-05 curies of beta emitters was released as airborne particulate matter with a maximum quarterly average release rate of 1.23E-06 $\mu\text{Ci/sec}$. Alpha-emitting radionuclides were below detectable limits.

A total of 1.55E+00 curies of tritium was released with a maximum average quarterly release rate of 4.65E-02 $\mu\text{Ci/sec}$.

1.2 Liquids Released to Rock River

A total of 1.56E+07 liters of radioactive liquid waste (prior to dilution) containing 1.24E+00 curies (excluding tritium, noble gases and alpha) were discharged from the station. These wastes were released at a maximum quarterly average concentration of 1.34E-07 $\mu\text{Ci/ml}$. A total of 2.00E+03 curies of tritium was released. Quarterly release totals of principal radionuclides in liquid effluents are given in Table 1.2-1.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped to Barnwell, South Carolina; Oak Ridge, Tennessee; Memphis, Tennessee and Richland, Washington. For detail, refer to Byron Station 1999 Effluent Report.

3.0 DOSE TO MAN

3.1 Gaseous Effluent Pathways

Table 3.1-1 summarizes the doses resulting from releases of airborne radioactivity via the different exposure pathways.

3.1.1 Noble Gases

3.1.1.1 Gamma Dose Rates

Offsite Gamma air and whole body dose rates are shown in Table 3.1-1 and were calculated based on measured release rates, isotopic composition of the noble gases, and average meteorological data for the

period. Isodose contours based on concurrent meteorological data for gamma dose are shown in Figure 3.1-1 for the year. Based on measured effluents and average meteorological data, the maximum total body dose to an individual would be $8.34\text{E-}06$ mrem for the year (Table 3.1-1), with an occupancy or shielding factor of 0.7 included. The maximum total body dose based on measured effluents and concurrent meteorological data would be $3.60\text{E-}06$ mrem (Table 3.4-1). The maximum gamma air dose was $1.13\text{E-}05$ mrad (Table 3.1-1) based on measured effluents and average meteorological data, and $5.45\text{E-}06$ mrad based on concurrent meteorological data (Table 3.4-1).

3.1.1.2 Beta Air and Skin Dose Rates

The range of beta particles in air is relatively small (on the order of a few meters or less); consequently, plumes of gaseous effluents may be considered "infinite" for the purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm^2 and an occupancy factor of 1.0 is used. The skin dose from beta and gamma radiation for the year, based on measured effluents and average meteorological data, was $2.45\text{E-}05$ mrem (Table 3.1-1). The skin dose based on concurrent meteorological data was $9.03\text{E-}06$ mrem (Table 3.4-1).

The air concentrations of radioactive noble gases at the offsite receptor locations are given in Figure 3.1-2. The maximum offsite beta air dose for the year, based on measured effluents and average meteorological data, was $2.98\text{E-}05$ mrad (Table 3.1-1). The beta air dose based on concurrent meteorological data was $7.96\text{E-}06$ mrad (Table 3.4-1).

3.1.2 Radioactive Iodine

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine. The minimal levels of radioiodine, I-131, released during routine operation of the station may be made available to man resulting in a dose to the thyroid. The principal pathway of interest for this radionuclide is ingestion of radioiodine in milk. Calculations made for 1999 and previous years indicate that contributions to doses from inhalation of I-131 and I-133 and ingestion of I-133 in milk are negligible.

3.1.2.1 Iodine Concentrations in Air

The calculated concentration contours for iodine in air are shown in Figure 3.1-3. Included in these calculations is an iodine cloud depletion factor which accounts for the phenomenon of elemental iodine

deposition on the ground. The maximum offsite concentration is estimated to be $1.28\text{E-}06$ pCi/m³ for the year (Table 3.4-1).

3.1.2.2 Dose to Thyroid

The hypothetical thyroid dose to the maximum exposed individual living near the station via ingestion of milk was calculated. The radionuclide considered was I-131 and the source of milk was taken to be the nearest dairy farm with the cows pastured from May through October. The maximum thyroid dose was less than $1.28\text{E-}03$ mrem during the year (Table 3.1-1 [child]).

3.1.3 Concentrations of Particulates in Air

Concentration contours of radioactive airborne particulates are shown in Figure 3.1-4. The maximum annual offsite concentration is estimated to be $9.80\text{E-}07$ pCi/m³ (Table 3.4-1).

3.2 Liquid Effluent Pathways

The three principal pathways through the aquatic environment for potential doses to man from liquid waste are ingestion of potable water, eating of aquatic foods, and exposure while on the shoreline. Not all of these pathways are significant or applicable at a given time or station but a reasonable approximation of the dose can be made by adjusting the dose formula for season of the year or type and degree of use of the aquatic environment. NRC developed equations* were used to calculate the doses to the whole body, lower GI tract, thyroid, bone and skin. Specific parameters for use in the equations are given in the ComEd Offsite Dose Calculation Manual. The maximum whole body dose for the year was $1.06\text{E-}02$ mrem and no organ dose exceeded $2.20\text{E-}02$ mrem (Table 3.2-1 [adult]).

3.3 Assessment of Dose to Member of Public

During the period January to December, 1999, Byron Station did not exceed these limits as shown in Table 3.1-1 and Table 3.2-1 (based on yearly average meteorological data), and as shown in Figure 3.1-1 (based on concurrent meteorological data), and as shown in Table 3.3-1:

- The RETS limits on dose or dose commitment to a member of the public due to radioactive materials in liquid effluents from each reactor unit (1.5 mrem to the whole body or 5 mrem to any organ during any calendar quarter; 3 mrem to the whole body or 10 mrem to any organ during any calendar year).

* Nuclear Regulatory Commission, Regulatory Guide 1.109 (Rev. 1).

- The RETS limits on air dose in noble gases released in gaseous effluents to a member of the public from each reactor unit (5 mrad for gamma radiation or 10 mrad for beta radiation during any calendar quarter; 10 mrad for gamma radiation or 20 mrad for beta radiation during any calendar year).
- The RETS limits on dose to a member of the public due to iodine-131, iodine-133, tritium, and radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each reactor unit (7.5 mrem to any organ during any calendar quarter; 15 mrem to any organ during any calendar year).
- The 10CFR20 limit on Total Effective Dose Equivalent to individual members of the public (100 mrem).

4.0 SITE METEOROLOGY

A summary of the site meteorological measurements taken during each calendar quarter of the year is given in Appendix II. The data are presented as cumulative joint frequency distributions of the wind direction for the 250' level and wind speed class by atmospheric stability class determined from the temperature difference between the 250' and 30' levels. Data recovery for all measurements on the tower was 99.2% during 1999 (Table 3.4-1).

5.0 ENVIRONMENTAL MONITORING

Table 5.0-1 provides an outline of the Radiological Environmental Monitoring Program (REMP) as required in the Technical Standards. Table 5.0-2 outlines the sampling locations, sample collection frequency and analysis for the samples. Sampling locations are shown in Figures 5.0-1 through 5.0-4. Concentrations of radioactivity in various media are summarized in Tables 5.0-3 through 5.0-6. A detailed listing of all data is presented in Appendix III.

Specific findings for various environmental media are discussed below.

5.1 Gamma Radiation

External radiation dose was measured using $\text{CaSO}_4:\text{Tm}$ thermoluminescent dosimeters (TLDs). Each location consists of 2 TLD sets. The quarterly average external radiation dose for the year was 15.5 mR at the indicator locations and 14.2 mR at the control locations. TLD results are listed in Section 4.0 of Appendix III and locations are shown in Figure 5.0-1.

Quarterly external radiation dose at indicator air sampling locations averaged 13.9 mR and was similar to that measured in 1985 (14.4 mR), 1986 (14.9 mR), 1987 (15.3 mR), 1988 (15.2 mR), 1989 (14.6 mR), 1990 (14.5 mR), 1991 (14.3 mR), 1992 (13.6 mR),

1993 (14.2 mR), 1994 (14.9 mR), 1995 (14.9 mR), 1996 (15.4 mR), 1997 (13.8 mR) and 1998 (14.7 mR). These differences are not statistically significant.

5.2 Airborne I-131 and Particulate Radioactivity

Locations of the samplers are shown in Figures 5.0-2 and 5.0-3. Airborne I-131 remained below the LLD of 0.07 pCi/m^3 throughout the year in all samples.

Gross beta concentrations ranged from 0.011 to 0.050 pCi/m^3 and averaged 0.025 pCi/m^3 , which is slightly lower than the average concentrations in 1985 (0.026 pCi/m^3), 1986 (0.026 pCi/m^3), except for the period from May 12 through June 9 when it was influenced by the nuclear reactor accident at Chernobyl), 1987 (0.027 pCi/m^3), 1988 (0.031 pCi/m^3), 1989 (0.026 pCi/m^3), and similar to 1990 (0.021 pCi/m^3), 1991 (0.020 pCi/m^3), 1992 (0.022 pCi/m^3), 1993 (0.021 pCi/m^3), 1994 (0.021 pCi/m^3), 1995 (0.022 pCi/m^3), 1996 (0.022 pCi/m^3), 1997 (0.021 pCi/m^3) and 1998 (0.022 pCi/m^3).

All gamma-emitting nuclide activities were below their respective LLD levels. No radioactivity attributable to station operation was detected in any sample.

5.3 Terrestrial Radioactivity

Vegetables were collected in August and analyzed for gamma-emitting nuclides. In addition, broad leaf vegetables were analyzed for Iodine-131. All nuclides were below the limits of detection, indicating that there was no measurable amount of radioactivity attributable to the station releases. Identical results were obtained during the period 1985 through 1998.

5.4 Aquatic Radioactivity

Well water was collected quarterly from three offsite wells, shown in Figure 5.0-4, and analyzed for tritium and gamma-emitting nuclides. All results were below the lower limits of detection. The results were similar to those obtained in 1985 through 1998.

Surface water samples were collected weekly from two locations noted in Figure 5.0-4. Weekly samples were composited monthly and analyzed for gross beta and gamma. Quarterly composites were analyzed for tritium. Cs-134 and Cs-137 concentrations were below the LLD level of 15 pCi/L and 18 pCi/L , respectively, in all samples. All other gamma-emitters were below their respective LLDs. Gross beta at BY-12 (Oregon Pool of Rock River, Downstream) averaged 3.4 pCi/L , ranging from 2.0 to 5.4 pCi/L ; BY-29 (Byron, Upstream) gross beta averaged 3.3 pCi/L , ranging from 2.7 to 5.1 pCi/L .

Tritium concentration was below the LLD of 200 pCi/L in all samples collected from Byron, Upstream (BY-29). These levels were similar to those obtained in 1985 through 1998.

At Oregon Pool of Rock River, Downstream (BY-12) tritium averaged 743 pCi/L, ranging from 421 to 1,319 pCi/L. Elevated levels of tritium downstream from discharge pipe are attributable to the station operation. These levels were similar to those obtained in 1985 through 1998.

Sediment samples were collected twice and analyzed for gamma-emitters. Cs-134 was below the LLD level of 0.15 pCi/g dry weight in all samples. Cs-137 was below the LLD level of 0.18 pCi/g dry weight in all samples.

Levels of gamma radioactivity in fish were measured and found in all cases to be below the lower limits of detection for the program. The results were identical to those obtained in 1985 through 1998.

5.5 Milk

Milk samples were collected monthly from November through April and biweekly from May through October and analyzed for Iodine-131 and gamma-emitting nuclides. Locations are shown in Figure 5.0-4. Iodine-131 activity was below the LLD level of 0.5 (May through October) and 5.0 (November through April) pCi/L in all samples.

Cs-134, Cs-137 and Ba/La-140 were below the LLD levels of 15, 18 and 15 pCi/L, respectively. The results for I-131, Cs-134, Cs-137 and Ba/La-140 were identical to those obtained during the period 1985 through 1998, except during several months following the accident at Chernobyl, which occurred on April 26, 1986. During those months I-131 ranged from 0.9 to 58.6 pCi/L, Cs-134 ranged from 5.8 to 10.7 pCi/L and Cs-137 ranged from 5.3 to 17.8 pCi/L.

5.6 Sample Collections

All samples were collected as scheduled except those listed in Listing of Missed Samples, Section 2.0 of Appendix III.

5.7 Program Modifications

New sediment location, BY-34, was added in May of 1999.

6.0 ANALYTICAL PROCEDURES

Procedures used during the period covered in this report remained unchanged. A summary of the procedures used for analyzing radioactivity in environmental samples is given in Appendix VI of the report for the period January - December 1993.

7.0 MILCH ANIMALS AND NEAREST CATTLE CENSUS

Census of milch animals and nearest cattle were conducted within a 6.2-mile radius of the Station. The survey was conducted by "door-to-door" canvas and by information from Illinois agricultural agents. The census was conducted by W. Mueller on August 21, 1999.

Results of the milch animal and nearest cattle census are presented on pages 40-41 of Appendix III.

8.0 NEAREST RESIDENCES CENSUS

The census of nearest residences within a 6.2-mile radius was conducted by W. Mueller on August 21, 1999.

Results of the nearest residence census are presented page 42 of Appendix III.

9.0 INTERLABORATORY COMPARISON PROGRAM RESULTS

Teledyne's Interlaboratory Comparison Program Results are presented in Appendix IV.

10.0 ERRATA DATA

There is no errata data for 1999.

APPENDIX I

DATA TABLES AND FIGURES

Table 1.1-1

BYRON NUCLEAR POWER STATION
UNIT 1 DOCKET NUMBER STN-50-454
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 1999 THROUGH DECEMBER, 1999

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

UNITS	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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A. FISSION AND ACTIVATION GAS RELEASES

1. Total Release Activity:	Ci	1.65E-01	1.02E-01	6.59E-02	1.66E-01
2. Maximum Release Rate for Quarter:	uCi/sec	9.80E+00	7.33E+00	1.19E+00	1.85E+00
3. % of Imp. Tech. Spec. Limits *					
a. Whole Body (500 mrem/yr):	%	0.00	0.00	0.00	0.00
b. Skin (3000 mrem/yr):	%	0.00	0.00	0.00	0.00
4. % of 10CFR50 Limits					
a. Gamma Quarterly (5 mrad):	%	0.00	0.00	0.00	0.00
b. Beta Quarterly (10 mrad):	%	0.00	0.00	0.00	0.00
c. Gamma Annual (10 mrad):	%	0.00	0.00	0.00	0.00
d. Beta Annual (20 mrad):	%	0.00	0.00	0.00	0.00

B. IODINE RELEASES

1. Total I-131 Activity:	Ci	< LLD	< LLD	< LLD	2.14E-06
2. Average I-131 Release Rate:	uCi/sec	0.00E+00	0.00E+00	0.00E+00	2.69E-07

C. PARTICULATE (>8 day half-life) RELEASES

1. Total Particulate Activity:	Ci	< LLD	< LLD	< LLD	2.84E-06
2. Average Particulate Release Rate:	uCi/sec	0.00E+00	0.00E+00	0.00E+00	3.58E-07
3. Gross Alpha Activity for Quarter:	Ci	< LLD	< LLD	< LLD	< LLD

D. TRITIUM RELEASES

1. Total Tritium Activity:	Ci	8.69E-02	5.26E-02	8.36E-02	1.61E-01
2. Average Tritium Release Rate:	uCi/sec	1.12E-02	6.68E-03	1.05E-02	2.03E-02

* % of Imp. Tech. Spec. limits is based on the maximum release rate for the period considered.

Table 1.1-1 (continued)

**BYRON NUCLEAR POWER STATION
UNIT 2 DOCKET NUMBER STN-50-455
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 1999 THROUGH DECEMBER, 1999**

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

UNITS	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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A. FISSION AND ACTIVATION GAS RELEASES

1. Total Release Activity:	Ci	1.48E-01	1.06E-01	5.45E-02	2.49E-01
2. Maximum Release Rate for Quarter:	uCi/sec	9.80E+00	7.33E+00	1.19E+00	1.85E+00
3. % of Imp. Tech. Spec. Limits:					
a. Whole Body (500 mrem/yr):	%	0.00	0.00	0.00	0.00
b. Skin (3000 mrem/yr):	%	0.00	0.00	0.00	0.00
4. % of 10CFR50 Limits					
a. Gamma Quarterly (5 mrad):	%	0.00	0.00	0.00	0.00
b. Beta Quarterly (10 mrad):	%	0.00	0.00	0.00	0.00
c. Gamma Annual (10 mrad):	%	0.00	0.00	0.00	0.00
d. Beta Annual (20 mrad):	%	0.00	0.00	0.00	0.00

B. IODINE RELEASES

1. Total I-131 Activity:	Ci	< LLD	< LLD	< LLD	1.53E-05
2. Average I-131 Release Rate:	uCi/sec	0.00E+00	0.00E+00	0.00E+00	1.93E-06

C. PARTICULATE (>8 day half-life) RELEASES

1. Total Particulate Activity:	Ci	8.04E-07	3.96E-07	< LLD	9.78E-06
2. Average Particulate Release Rate:	uCi/sec	1.03E-07	5.04E-08	0.00E+00	1.23E-06
3. Gross Alpha Activity for Quarter:	Ci	< LLD	< LLD	< LLD	< LLD

D. TRITIUM RELEASES

1. Total Tritium Activity:	Ci	3.62E-01	3.00E-01	1.90E-01	3.16E-01
2. Average Tritium Release Rate:	uCi/sec	4.65E-02	3.82E-02	2.39E-02	3.97E-02

* % of Imp. Tech. Spec. limits is based on the maximum release rate for the period considered.

Table 1.2-1

BYRON NUCLEAR POWER STATION
UNIT 1 DOCKET NUMBER STN-50-454
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 1999 THROUGH DECEMBER, 1999

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

UNITS	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
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L. FISSION AND ACTIVATION PRODUCT RELEASES

1. Total Activity Released:
2. Average Concentration Released For Quarter:

Ci	5.69E-02	3.41E-01	1.71E-01	5.14E-02
uCi/ml	2.04E-08	1.34E-07	5.72E-08	1.70E-08

3. % of 10CFR50 Limits

- a. Quarterly Whole Body (1.5 mrem):
- b. Quarterly Any Organ (5.0 mrem):
- c. Annual Whole Body (3.0 mrem):
- d. Annual Any Organ (10.0 mrem):

%	0.09	0.16	0.06	0.04
%	0.03	0.06	0.13	0.02
%	0.05	0.13	0.16	0.18
%	0.02	0.05	0.10	0.11

M. TRITIUM

1. Total Activity Released:
2. Average Concentration Released For Quarter:
3. % of ITS Limit (1.00E-2 uCi/ml):

Ci	3.42E+02	2.05E+02	2.94E+02	1.59E+02
uCi/ml	1.22E-04	8.02E-05	9.83E-05	5.27E-05
%	1.22	0.80	0.98	0.53

N. DISSOLVED NOBLE GASES

1. Total Activity Released:
2. Average Concentration Released For Quarter:
3. % of Tech. Reqt. Manual Limit (2.00E-4 uCi/ml):

Ci	6.08E-03	5.12E-02	7.01E-03	8.35E-03
uCi/ml	2.18E-09	2.01E-08	2.35E-09	2.77E-09
%	0.00	0.01	0.00	0.00

O. GROSS ALPHA

1. Total Activity Released:
2. Average Concentration Released For Quarter:

Ci	< LLD	< LLD	< LLD	< LLD
uCi/ml	< LLD	< LLD	< LLD	< LLD

- P. VOLUME OF WASTE RELEASED PER UNIT:

liters	1.28E+06	2.74E+06	1.70E+06	2.06E+06
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- Q. VOLUME OF DILUTION WATER PER UNIT:

liters	2.79E+09	2.55E+09	2.99E+09	3.01E+09
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Table 1.2-1 (continued)

**BYRON NUCLEAR POWER STATION
UNIT 2 DOCKET NUMBER STN-50-455
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY, 1999 THROUGH DECEMBER, 1999**

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

UNITS	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
-------	-------------	-------------	-------------	-------------

L. FISSION AND ACTIVATION PRODUCT RELEASES

1. Total Activity Released:
2. Average Concentration Released For Quarter:

Ci	5.69E-02	3.41E-01	1.71E-01	5.14E-02
uCi/ml	2.04E-08	1.34E-07	5.72E-08	1.70E-08

3. % of 10CFR50 Limits

- a. Quarterly Whole Body (1.5 mrem):
- b. Quarterly Any Organ (5.0 mrem):
- c. Annual Whole Body (3.0 mrem):
- d. Annual Any Organ (10.0 mrem):

%	0.09	0.16	0.06	0.04
%	0.03	0.06	0.13	0.02
%	0.05	0.13	0.16	0.18
%	0.02	0.05	0.10	0.11

M. TRITIUM

1. Total Activity Released:
2. Average Concentration Released For Quarter:
3. % of ITS Limit (1.00E-2 uCi/ml):

Ci	3.42E+02	2.05E+02	2.94E+02	1.59E+02
uCi/ml	1.22E-04	8.02E-05	9.83E-05	5.27E-05
%	1.22	0.80	0.98	0.53

N. DISSOLVED NOBLE GASES

1. Total Activity Released:
2. Average Concentration Released For Quarter:
3. % of Tech. Reqt. Manual Limit (2.00E-4 uCi/ml):

Ci	6.08E-03	5.12E-02	7.01E-03	8.35E-03
uCi/ml	2.18E-09	2.01E-08	2.35E-09	2.77E-09
%	0.00	0.01	0.00	0.00

O. GROSS ALPHA

1. Total Activity Released:
2. Average Concentration Released For Quarter:

Ci	< LLD	< LLD	< LLD	< LLD
uCi/ml	< LLD	< LLD	< LLD	< LLD

P. VOLUME OF WASTE RELEASED PER UNIT:

liters	1.28E+06	2.74E+06	1.70E+06	2.06E+06
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Q. VOLUME OF DILUTION WATER PER UNIT:

liters	2.79E+09	2.55E+09	2.99E+09	3.01E+09
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Figure 3.1-1

Estimated Cumulative Gamma Dose (in mrem)
from the Byron Station for the period
January-December 1999

Isopleth Labels

Small figure - multiply by 10^{-8}

Large figure - multiply by 10^{-6}

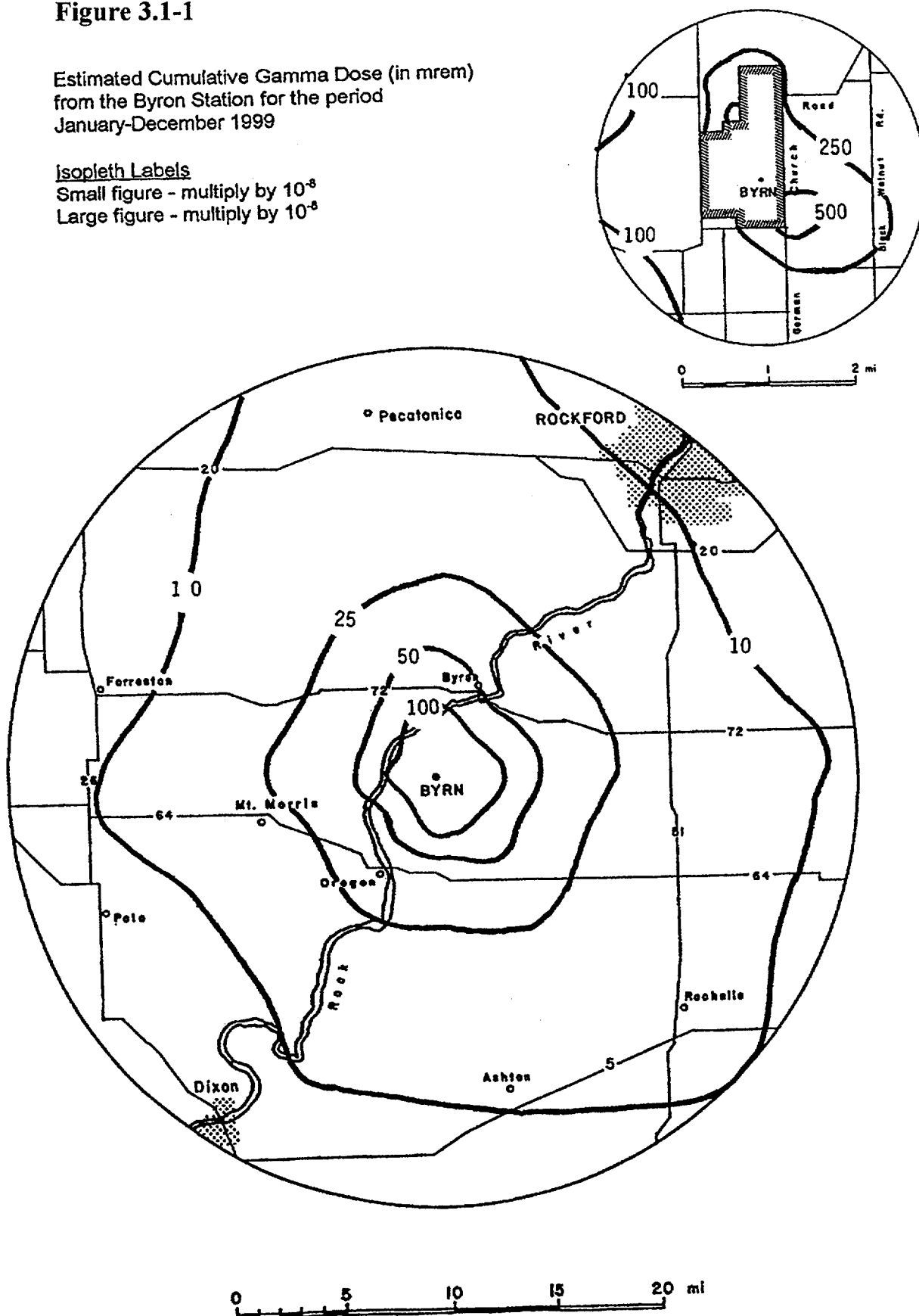


Figure 3.1-2

Estimated Total Concentrations (in pCi/m³)
of Noble Gases from the Byron Station
for the period January-December 1999

Isopleth Labels

Small figure - multiply by 10⁻⁴

Large figure - multiply by 10⁻⁴

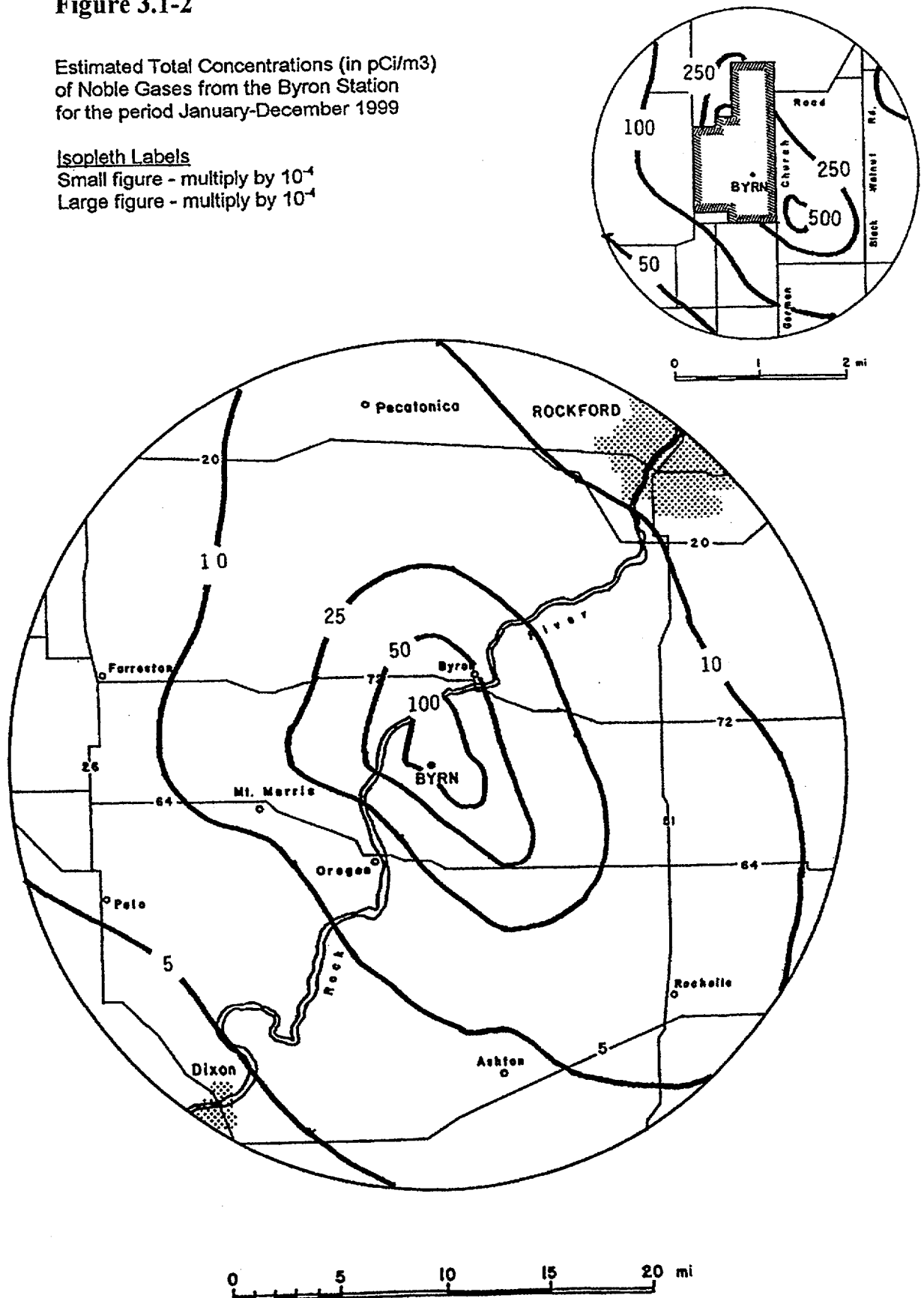


Figure 3.1-3

Estimated Total Concentrations (in pCi/m³)
of Iodines from the Byron Station for
the period January-December 1999

Isopleth Labels

Small figure - multiply by 10⁻³

Large figure - multiply by 10⁻⁹

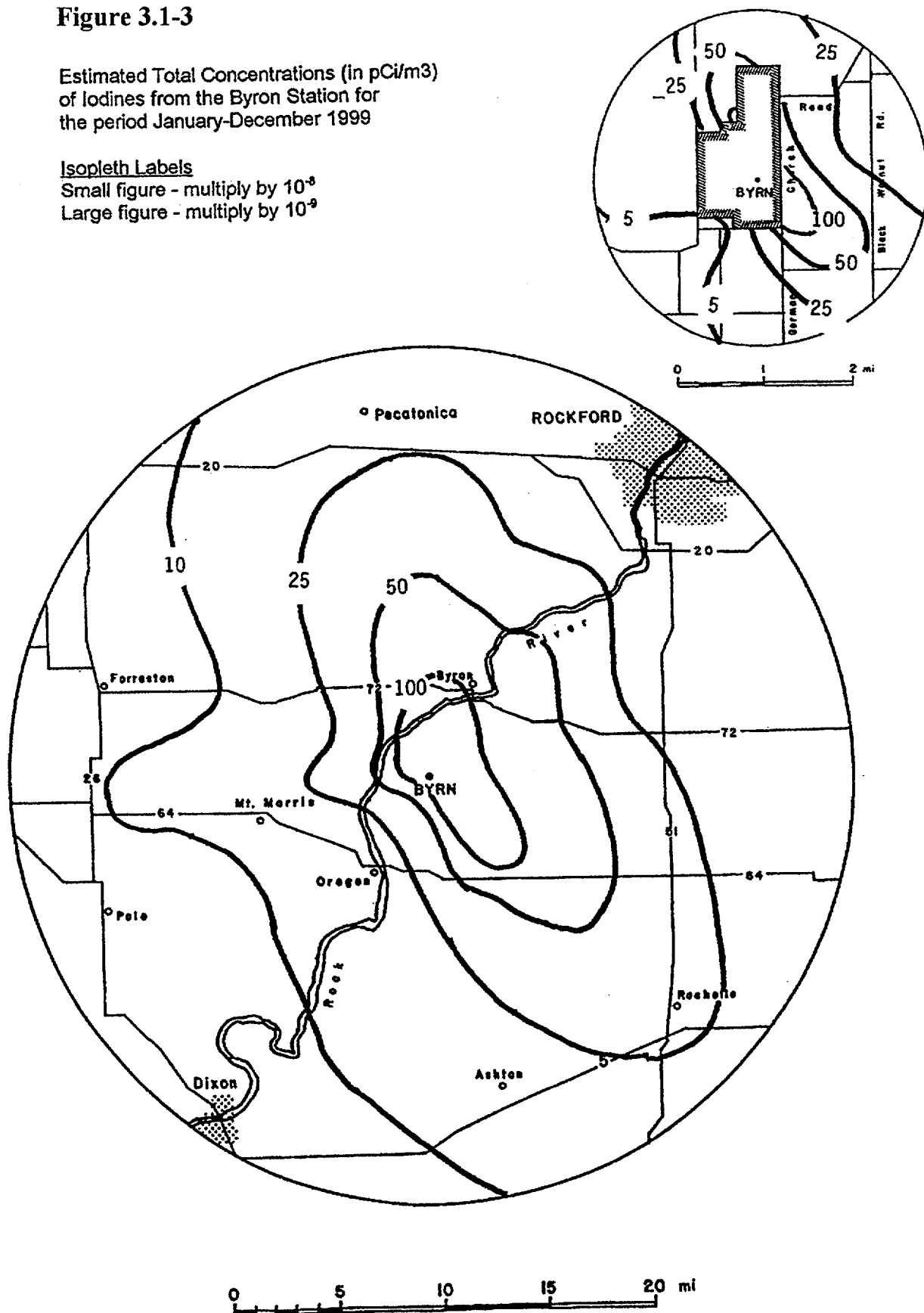


Figure 3.1-4

Estimated Total Concentrations (in pCi/m³)
of Particulates from the Byron Station
for the period January-December 1999

Isopleth Labels

Small figure - multiply by 10⁻⁹

Large figure - multiply by 10⁻⁸

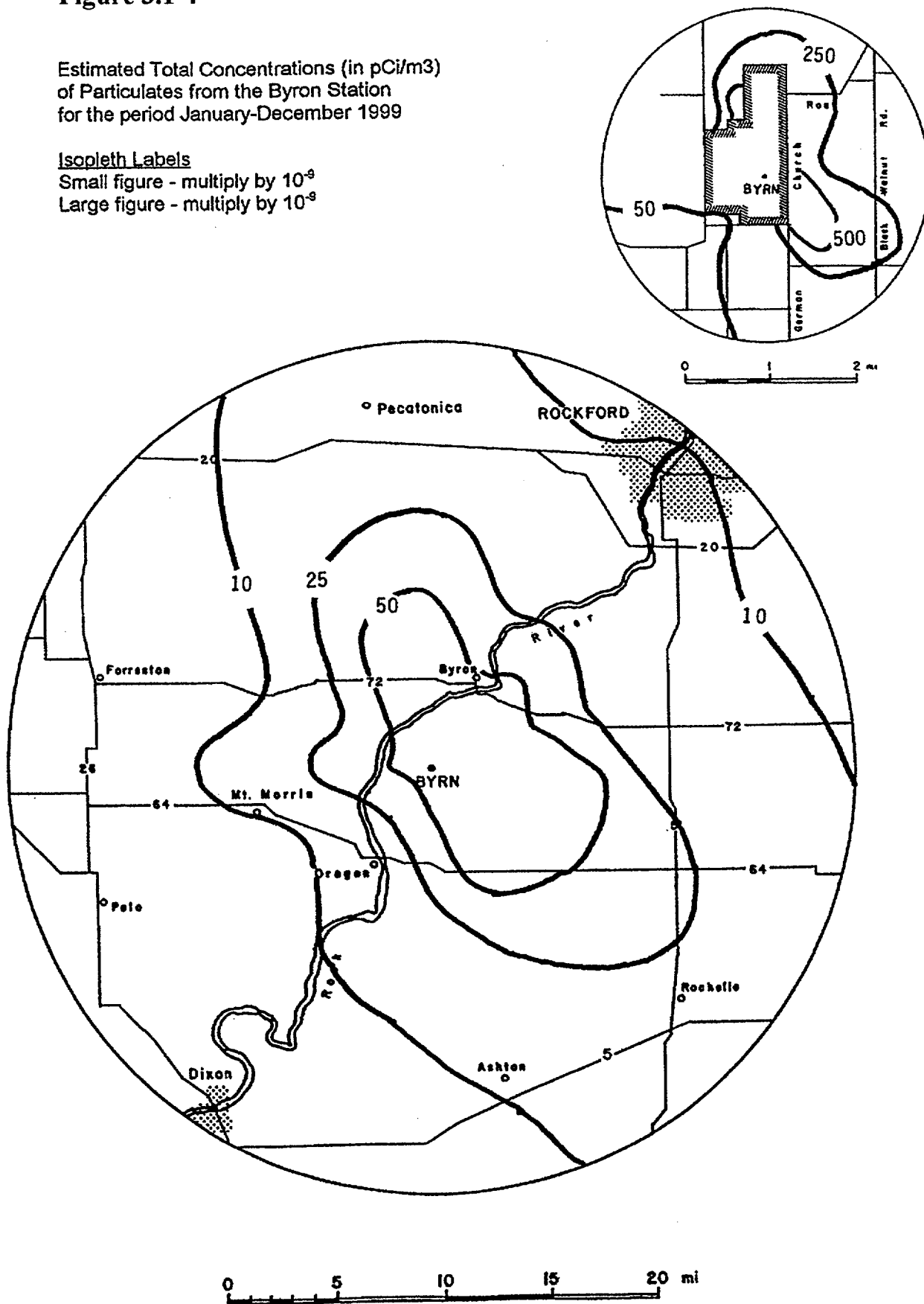


Table 3.1-1

BYRON STATION UNIT ONE

ACTUAL 1999
 MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
 PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
 INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	2.97E-06 (SSE)	1.64E-06 (SSE)	1.70E-06 (SSE)	1.91E-06 (SSE)	8.22E-06 (SSE)
BETA AIR (MRAD)	6.74E-06 (SSE)	4.05E-06 (SSE)	4.36E-06 (SSE)	5.81E-06 (SSE)	2.10E-05 (SSE)
TOT. BODY (MREM)	2.21E-06 (SSE)	1.22E-06 (SSE)	1.27E-06 (SSE)	1.41E-06 (SSE)	6.11E-06 (SSE)
SKIN (MREM)	6.62E-06 (SSE)	3.67E-06 (SSE)	4.18E-06 (SSE)	4.73E-06 (SSE)	1.92E-05 (SSE)
ORGAN (MREM)	3.81E-05 (NE)	2.31E-05 (NE)	3.69E-05 (NE)	9.61E-05 (NE)	1.94E-04 (NE)
	LIVER THYROID KIDNEY LUNG GI_LLI	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I INFANT RECEPTOR

	----- % OF APP I. -----						
	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER THYROID KIDNEY LUNG GI_LLI	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT ONE

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

CHILD RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	2.97E-06 (SSE)	1.64E-06 (SSE)	1.70E-06 (SSE)	1.91E-06 (SSE)	8.22E-06 (SSE)
BETA AIR (MRAD)	6.74E-06 (SSE)	4.05E-06 (SSE)	4.36E-06 (SSE)	5.81E-06 (SSE)	2.10E-05 (SSE)
TOT. BODY (MREM)	2.21E-06 (SSE)	1.22E-06 (SSE)	1.27E-06 (SSE)	1.41E-06 (SSE)	6.11E-06 (SSE)
SKIN (MREM)	6.62E-06 (SSE)	3.67E-06 (SSE)	4.18E-06 (SSE)	4.73E-06 (SSE)	1.92E-05 (SSE)
ORGAN (MREM)	2.68E-05 (NE)	4.31E-05 (SE)	1.45E-04 (SSE)	1.34E-04 (SE)	3.30E-04 (SE)
	LIVER THYROID KIDNEY LUNG GI_LLI	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
CHILD RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER THYROID KIDNEY LUNG GI_LLI	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT ONE

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

TEENAGER RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	2.97E-06 (SSE)	1.64E-06 (SSE)	1.70E-06 (SSE)	1.91E-06 (SSE)	8.22E-06 (SSE)
BETA AIR (MRAD)	6.74E-06 (SSE)	4.05E-06 (SSE)	4.36E-06 (SSE)	5.81E-06 (SSE)	2.10E-05 (SSE)
TOT. BODY (MREM)	2.21E-06 (SSE)	1.22E-06 (SSE)	1.27E-06 (SSE)	1.41E-06 (SSE)	6.11E-06 (SSE)
SKIN (MREM)	6.62E-06 (SSE)	3.67E-06 (SSE)	4.18E-06 (SSE)	4.73E-06 (SSE)	1.92E-05 (SSE)
ORGAN (MREM)	1.75E-05 (NE)	2.86E-05 (SE)	9.44E-05 (SSE)	8.86E-05 (SE)	2.19E-04 (SE)
	LIVER THYROID KIDNEY LUNG GI_LLI	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
TEENAGER RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER THYROID KIDNEY LUNG GI_LLI	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT ONE

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	2.97E-06	1.64E-06	1.70E-06	1.91E-06	8.22E-06
(MRAD)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
BETA AIR	6.74E-06	4.05E-06	4.36E-06	5.81E-06	2.10E-05
(MRAD)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
TOT. BODY	2.21E-06	1.22E-06	1.27E-06	1.41E-06	6.11E-06
(MREM)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
SKIN	6.62E-06	3.67E-06	4.18E-06	4.73E-06	1.92E-05
(MREM)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
ORGAN	2.43E-05	3.07E-05	8.41E-05	9.66E-05	2.33E-04
(MREM)	(S)	(S)	(SE)	(S)	(S)
	LIVER	LUNG	LIVER	THYROID	THYROID
	THYROID		THYROID		
	KIDNEY		KIDNEY		
	LUNG		LUNG		
	GI_LLI		GI_LLI		

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
ADULT RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER	LUNG	LIVER	THYROID		THYROID
		THYROID		THYROID			
		KIDNEY		KIDNEY			
		LUNG		LUNG			
		GI_LLI		GI_LLI			

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	7.91E-07	4.01E-07	7.70E-07	1.13E-06	3.09E-06
(MRAD)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
BETA AIR	2.29E-06	1.60E-06	1.11E-06	3.78E-06	8.79E-06
(MRAD)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
TOT. BODY	5.69E-07	2.82E-07	5.71E-07	8.07E-07	2.23E-06
(MREM)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
SKIN	1.36E-06	7.93E-07	1.16E-06	2.03E-06	5.33E-06
(MREM)	(SSE)	(SSE)	(SSE)	(SSE)	(SSE)
ORGAN	1.59E-04	1.32E-04	8.37E-05	2.94E-04	6.68E-04
(MREM)	(NE)	(NE)	(NE)	(NE)	(NE)
	LIVER	LIVER	LIVER	THYROID	THYROID
		THYROID	THYROID		
		KIDNEY	KIDNEY		
		LUNG	LUNG		
		GI_LLI	GI_LLI		

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
INFANT RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER	LIVER	LIVER	THYROID		THYROID
			THYROID	THYROID			
			KIDNEY	KIDNEY			
			LUNG	LUNG			
			GI_LLI	GI_LLI			

RESULTS BASED UPON:

ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

CHILD RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	7.91E-07 (SSE)	4.01E-07 (SSE)	7.70E-07 (SSE)	1.13E-06 (SSE)	3.09E-06 (SSE)
BETA AIR (MRAD)	2.29E-06 (SSE)	1.60E-06 (SSE)	1.11E-06 (SSE)	3.78E-06 (SSE)	8.79E-06 (SSE)
TOT. BODY (MREM)	5.69E-07 (SSE)	2.82E-07 (SSE)	5.71E-07 (SSE)	8.07E-07 (SSE)	2.23E-06 (SSE)
SKIN (MREM)	1.36E-06 (SSE)	7.93E-07 (SSE)	1.16E-06 (SSE)	2.03E-06 (SSE)	5.33E-06 (SSE)
ORGAN (MREM)	1.12E-04 (NE)	2.49E-04 (SE)	3.29E-04 (SSE)	3.32E-04 (SE)	9.52E-04 (SE)
	LIVER	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
CHILD RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.01
		LIVER	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

TEENAGER RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	7.91E-07 (SSE)	4.01E-07 (SSE)	7.70E-07 (SSE)	1.13E-06 (SSE)	3.09E-06 (SSE)
BETA AIR (MRAD)	2.29E-06 (SSE)	1.60E-06 (SSE)	1.11E-06 (SSE)	3.78E-06 (SSE)	8.79E-06 (SSE)
TOT. BODY (MREM)	5.69E-07 (SSE)	2.82E-07 (SSE)	5.71E-07 (SSE)	8.07E-07 (SSE)	2.23E-06 (SSE)
SKIN (MREM)	1.36E-06 (SSE)	7.93E-07 (SSE)	1.16E-06 (SSE)	2.03E-06 (SSE)	5.33E-06 (SSE)
ORGAN (MREM)	7.33E-05 (NE)	1.65E-04 (SE)	2.14E-04 (SSE)	2.18E-04 (SE)	6.32E-04 (SE)
	LIVER	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
TEENAGER RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
	LIVER	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON:

ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.1-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00

ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	7.91E-07 (SSE)	4.01E-07 (SSE)	7.70E-07 (SSE)	1.13E-06 (SSE)	3.09E-06 (SSE)
BETA AIR (MRAD)	2.29E-06 (SSE)	1.60E-06 (SSE)	1.11E-06 (SSE)	3.78E-06 (SSE)	8.79E-06 (SSE)
TOT. BODY (MREM)	5.69E-07 (SSE)	2.82E-07 (SSE)	5.71E-07 (SSE)	8.07E-07 (SSE)	2.23E-06 (SSE)
SKIN (MREM)	1.36E-06 (SSE)	7.93E-07 (SSE)	1.16E-06 (SSE)	2.03E-06 (SSE)	5.33E-06 (SSE)
ORGAN (MREM)	1.02E-04 (S)	1.76E-04 (S)	1.91E-04 (SE)	2.29E-04 (S)	6.91E-04 (S)
	LIVER	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10CFR 50 APP. I
ADULT RECEPTOR

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
GAMMA AIR (MRAD)	5.0	0.00	0.00	0.00	0.00	10.0	0.00
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.00	0.00	0.00	5.0	0.00
SKIN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
ORGAN (MREM)	7.5	0.00	0.00	0.00	0.00	15.0	0.00
		LIVER	LIVER THYROID KIDNEY LUNG GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1

BYRON STATION UNIT ONE

ACTUAL 1999

MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
INFANT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	5.90E-04	3.62E-04	5.14E-04	2.75E-04	1.74E-03
BODY					
INTERNAL	5.94E-04	3.66E-04	5.15E-04	2.77E-04	1.75E-03
ORGAN					
	LIVER	LIVER	GI_LLI	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.04	0.02	0.03	0.02	3.0	0.06
CRIT. ORGAN (MREM)	5.0	0.01	0.01	0.01	0.01	10.0	0.02
		LIVER	LIVER	GI_LLI	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT ONE

ACTUAL 1999
 MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
 PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
 CHILD RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	8.77E-04	9.43E-04	7.63E-04	3.93E-04	2.98E-03
BODY					
INTERNAL	1.58E-03	2.60E-03	2.09E-03	7.30E-04	6.08E-03
ORGAN					
	LIVER	LIVER	GI_LLI	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.06	0.06	0.05	0.03	3.0	0.10
CRIT. ORGAN (MREM)	5.0	0.03	0.05	0.04	0.01	10.0	0.06
		LIVER	LIVER	GI_LLI	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT ONE

ACTUAL 1999
 MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
 PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
 TEENAGER RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	8.86E-04	1.46E-03	6.34E-04	3.55E-04	3.34E-03
BODY					
INTERNAL	1.46E-03	2.80E-03	4.49E-03	8.07E-04	7.84E-03
ORGAN					
	LIVER	LIVER	GI_LLI	GI_LLI	GI_LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.06	0.10	0.04	0.02	3.0	0.11
CRIT. ORGAN (MREM)	5.0	0.03	0.06	0.09	0.02	10.0	0.08
		LIVER	LIVER	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT ONE

ACTUAL 1999

MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
ADULT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	1.40E-03	2.43E-03	9.22E-04	5.51E-04	5.30E-03
BODY					
INTERNAL	1.61E-03	2.89E-03	6.44E-03	1.11E-03	1.10E-02
ORGAN					
	LIVER	LIVER	GI_LLI	GI_LLI	GI_LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.09	0.16	0.06	0.04	3.0	0.18
CRIT. ORGAN (MREM)	5.0	0.03	0.06	0.13	0.02	10.0	0.11
		LIVER	LIVER	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999
 MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
 PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
 INFANT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	5.90E-04	3.62E-04	5.14E-04	2.75E-04	1.74E-03
BODY					
INTERNAL	5.94E-04	3.66E-04	5.15E-04	2.77E-04	1.75E-03
ORGAN					
	LIVER	LIVER	GI_LLI	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.04	0.02	0.03	0.02	3.0	0.06
CRIT. ORGAN (MREM)	5.0	0.01	0.01	0.01	0.01	10.0	0.02
		LIVER	LIVER	GI_LLI	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
CHILD RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	8.77E-04	9.43E-04	7.63E-04	3.93E-04	2.98E-03
BODY					
INTERNAL	1.58E-03	2.60E-03	2.09E-03	7.30E-04	6.08E-03
ORGAN					
	LIVER	LIVER	GI_LLI	LIVER	LIVER

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.06	0.06	0.05	0.03	3.0	0.10
CRIT. ORGAN (MREM)	5.0	0.03	0.05	0.04	0.01	10.0	0.06
		LIVER	LIVER	GI_LLI	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
TEENAGER RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	8.86E-04	1.46E-03	6.34E-04	3.55E-04	3.34E-03
BODY					
INTERNAL	1.46E-03	2.80E-03	4.49E-03	8.07E-04	7.84E-03
ORGAN					
	LIVER	LIVER	GI_LLI	GI_LLI	GI_LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.06	0.10	0.04	0.02	3.0	0.11
CRIT. ORGAN (MREM)	5.0	0.03	0.06	0.09	0.02	10.0	0.08
		LIVER	LIVER	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.2-1 (continued)

BYRON STATION UNIT TWO

ACTUAL 1999

MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
 PERIOD OF RELEASE - 01/01/99 TO 12/31/99 CALCULATED 04/12/00
 ADULT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL	1.40E-03	2.43E-03	9.22E-04	5.51E-04	5.30E-03
BODY					
INTERNAL	1.61E-03	2.89E-03	6.44E-03	1.11E-03	1.10E-02
ORGAN					
	LIVER	LIVER	GI_LLI	GI_LLI	GI_LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1999

COMPLIANCE STATUS - 10 CFR 50 APP. I

----- % OF APP I. -----

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
TOTAL BODY (MREM)	1.5	0.09	0.16	0.06	0.04	3.0	0.18
CRIT. ORGAN (MREM)	5.0	0.03	0.06	0.13	0.02	10.0	0.11
		LIVER	LIVER	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.3-1

BYRON STATION UNIT ONE

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/99 TO 12/31/99

CALCULATED 04/12/00

1. 10 CFR 20.1301 (a)(1) Compliance

Total Effective Dose Equivalent, mrem/yr 5.27E-03

10 CFR 20.1301 (a)(1) limit mrem/yr 100.0

% of limit 0.01

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	1.06E-03	1.96E-03	1.63E-03	6.19E-04	0.01

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.3-1 (continued)

BYRON STATION UNIT ONE

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/99 TO 12/31/99

CALCULATED 04/12/00

2. 10 CFR 20.1301 (d)/40 CFR 190 Compliance

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	6.11E-06		
	Skyshine	0.00E+00		
	Ground	2.37E-07		
	Total	6.34E-06	25.0	0.00
Organ Dose (CDE)	Thyroid	3.54E-03	75.0	0.00
	Gonads	5.00E-03	25.0	0.02
	Breast	3.59E-03	25.0	0.01
	Lung	3.52E-03	25.0	0.01
	Marrow	4.56E-03	25.0	0.02
	Bone	1.09E-02	25.0	0.04
	Remainder	6.92E-03	25.0	0.03
	CEDE	5.27E-03		
	TEDE	5.27E-03	100.0	0.01

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.3-1 (continued)

BYRON STATION UNIT TWO

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/99 TO 12/31/99

CALCULATED 04/12/00

1. 10 CFR 20.1301 (a)(1) Compliance

Total Effective Dose Equivalent, mrem/yr 5.62E-03

10 CFR 20.1301 (a)(1) limit mrem/yr 100.0

% of limit 0.01

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	1.13E-03	2.08E-03	1.72E-03	6.95E-04	0.01

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

Table 3.3-1 (continued)

BYRON STATION UNIT TWO

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/99 TO 12/31/99

CALCULATED 04/12/00

2. 10 CFR 20.1301 (d)/40 CFR 190 Compliance

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	<u>2.23E-06</u>		
	Skyshine	<u>0.00E+00</u>		
	Ground	<u>1.21E-06</u>		
	Total	<u>3.44E-06</u>	<u>25.0</u>	<u>0.00</u>
Organ Dose (CDE)	Thyroid	<u>3.95E-03</u>	<u>75.0</u>	<u>0.01</u>
	Gonads	<u>5.35E-03</u>	<u>25.0</u>	<u>0.02</u>
	Breast	<u>3.94E-03</u>	<u>25.0</u>	<u>0.02</u>
	Lung	<u>3.87E-03</u>	<u>25.0</u>	<u>0.02</u>
	Marrow	<u>4.91E-03</u>	<u>25.0</u>	<u>0.02</u>
	Bone	<u>1.12E-02</u>	<u>25.0</u>	<u>0.04</u>
	Remainder	<u>7.27E-03</u>	<u>25.0</u>	<u>0.03</u>
	CEDE	<u>5.62E-03</u>		
	TEDE	<u>5.62E-03</u>	<u>100.0</u>	<u>0.01</u>

RESULTS BASED UPON: ODCM ANNEX REVISION 1.3 MARCH 1996
 ODCM SOFTWARE VERSION 1.1 January 1995
 ODCM DATABASE VERSION 1.1 January 1995

Table 3.4-1

BYRON STATION - UNIT 1

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

CURRENT PERIOD OF RELEASE: October 1 - December 31

YEAR: 1999

TYPE OF DOSE	CURRENT PERIOD	CURRENT QUARTER	THIRD QUARTER	SECOND QUARTER	FIRST QUARTER	ANNUAL
GAMMA AIR (mrad)	5.520E-07(SE)	5.520E-07(SE)	4.680E-07(SSE)	5.710E-07(NNW)	2.040E-06(SSW)	3.309E-06(NNW)
BETA AIR (mrad)	1.190E-06(NNW)	1.190E-06(NNW)	4.740E-07(SE)	3.230E-07(NNW)	2.340E-06(NNW)	4.247E-06(NNW)
WHOLE BODY (mrem)	4.040E-07(SE)	4.040E-07(SE)	2.390E-07(SSE)	2.570E-07(NNW)	1.310E-06(SSW)	1.917E-06(S)
SKIN (mrem)	9.860E-07(SE)	9.860E-07(SE)	6.280E-07(SSE)	6.190E-07(NNW)	3.630E-06(S)	5.214E-06(S)
ORGAN (mrem)	7.170E-07(NNW)	7.170E-07(NNW)	0.000E+00(N)	0.000E+00(N)	0.000E+00(N)	7.170E-07(NNW)
CRITICAL PERS-ORG	CH-TH	CH-TH	AD-BN	AD-BN	AD-BN	CH-TH

COMPLIANCE STATUS

TYPE OF DOSE	10 CFR 50 APP. I		10 CFR 50 APP. I	
	QUARTERLY OBJECTIVE	% OF APP. I	YEARLY OBJECTIVE	% OF APP. I
GAMMA AIR (mrad)	5.0	.00	10.0	.00
BETA AIR (mrad)	10.0	.00	20.0	.00
WHOLE BODY (mrem)	2.5	.00	5.0	.00
SKIN (mrem)	7.5	.00	15.0	.00
ORGAN (mrem)	7.5	.00	15.0	.00
CRITICAL PERSON-ORGAN		(CH-TH)		(CH-TH)

CRITICAL ORGANS: BN=BONE, LV=LIVER, TB=TOTAL BODY, TH=THYROID, KD=KIDNEY, LN=LUNG, GI=GI-LLI
 CRITICAL PERSON: AD=ADULT, TA=TEENAGER, CH=CHILD, IN=INFANT

Date of calculation: 3/21/2000

Table 3.4-1 (continued)

BYRON STATION - UNIT 2

MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES

CURRENT PERIOD OF RELEASE: October 1 - December 31

YEAR: 1999

TYPE OF DOSE	CURRENT PERIOD	CURRENT QUARTER	THIRD QUARTER	SECOND QUARTER	FIRST QUARTER	ANNUAL
GAMMA AIR (mrad)	9.270E-07(SE)	9.270E-07(SE)	8.870E-07(SSE)	5.540E-08(NNW)	4.870E-07(ESE)	2.142E-06(SSE)
BETA AIR (mrad)	2.060E-06(NNW)	2.060E-06(NNW)	6.600E-07(SE)	1.390E-07(NNW)	9.620E-07(NNW)	3.711E-06(NNW)
WHOLE BODY (mrem)	6.780E-07(SE)	6.780E-07(SE)	4.530E-07(SSE)	2.280E-08(NNW)	8.880E-07(SSW)	1.882E-06(SE)
SKIN (mrem)	1.620E-06(SE)	1.620E-06(SE)	1.190E-06(SSE)	8.530E-08(NNW)	1.280E-06(SSW)	3.819E-06(SE)
ORGAN (mrem)	1.210E-06(NNW)	1.210E-06(NNW)	0.000E+00(N)	0.000E+00(N)	8.800E-09(NNW)	1.210E-06(NNW)
CRITICAL PERS-ORG	CH-TH	CH-TH	AD-BN	AD-BN	TA-LN	CH-TH

COMPLIANCE STATUS

TYPE OF DOSE	10 CFR 50 APP. I QUARTERLY OBJECTIVE	% OF APP. I	10 CFR 50 APP. I YEARLY OBJECTIVE	% OF APP. I
GAMMA AIR (mrad)	5.0	.00	10.0	.00
BETA AIR (mrad)	10.0	.00	20.0	.00
WHOLE BODY (mrem)	2.5	.00	5.0	.00
SKIN (mrem)	7.5	.00	15.0	.00
ORGAN (mrem)	7.5	.00	15.0	.00
CRITICAL PERSON-ORGAN		(CH-TH)		(CH-TH)

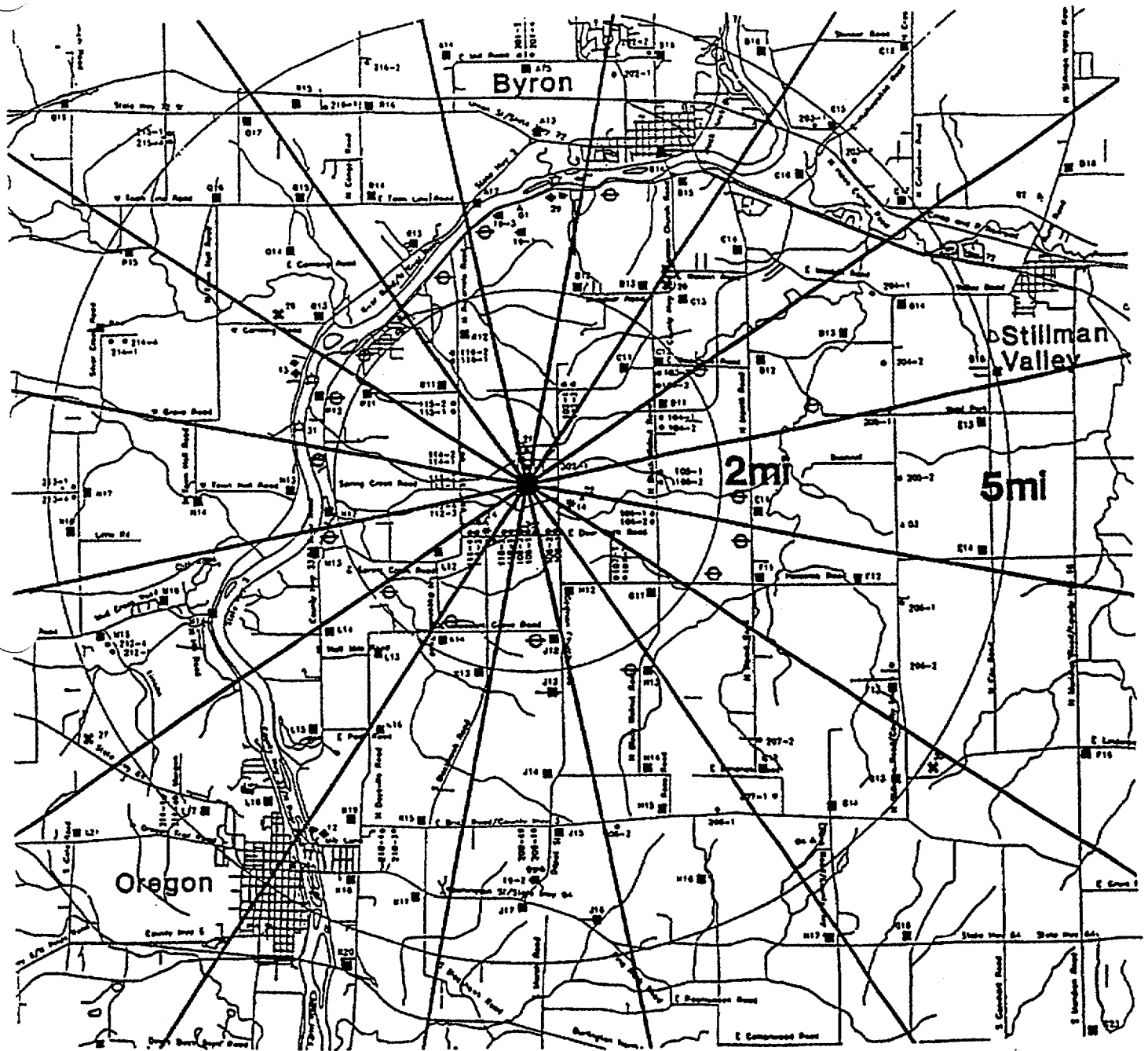
CRITICAL ORGANS: BN=BONE, LV=LIVER, TB=TOTAL BODY, TH=THYROID, KD=KIDNEY, LN=LUNG, GI=GI-LLI
CRITICAL PERSON: AD=ADULT, TA=TEENAGER, CH=CHILD, IN=INFANT

Maximum Offsite
Values (pCi/m3)

Date of calculation: 3/21/2000

Iodine	1.28E-06
Particulate Matter	9.80E-07
Data Recovery (priority parameters)	99.2%

Figure 5.0-1



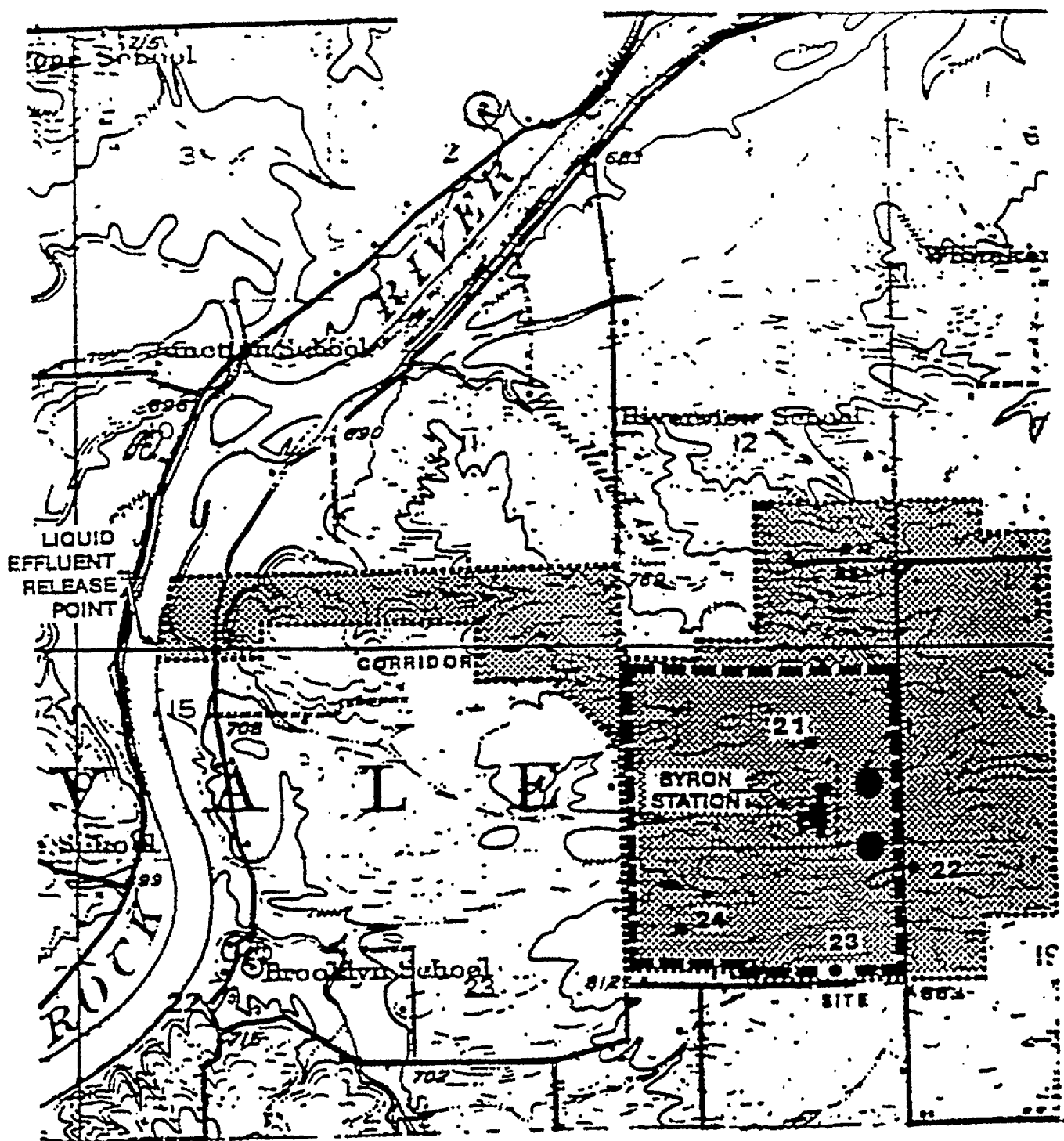
• TLD Location



BYRON STATION

INNER AND OUTER RING TLD LOCATIONS

Figure 5.0-2



0 1/2 1 KM



0 1/2 1 MILE



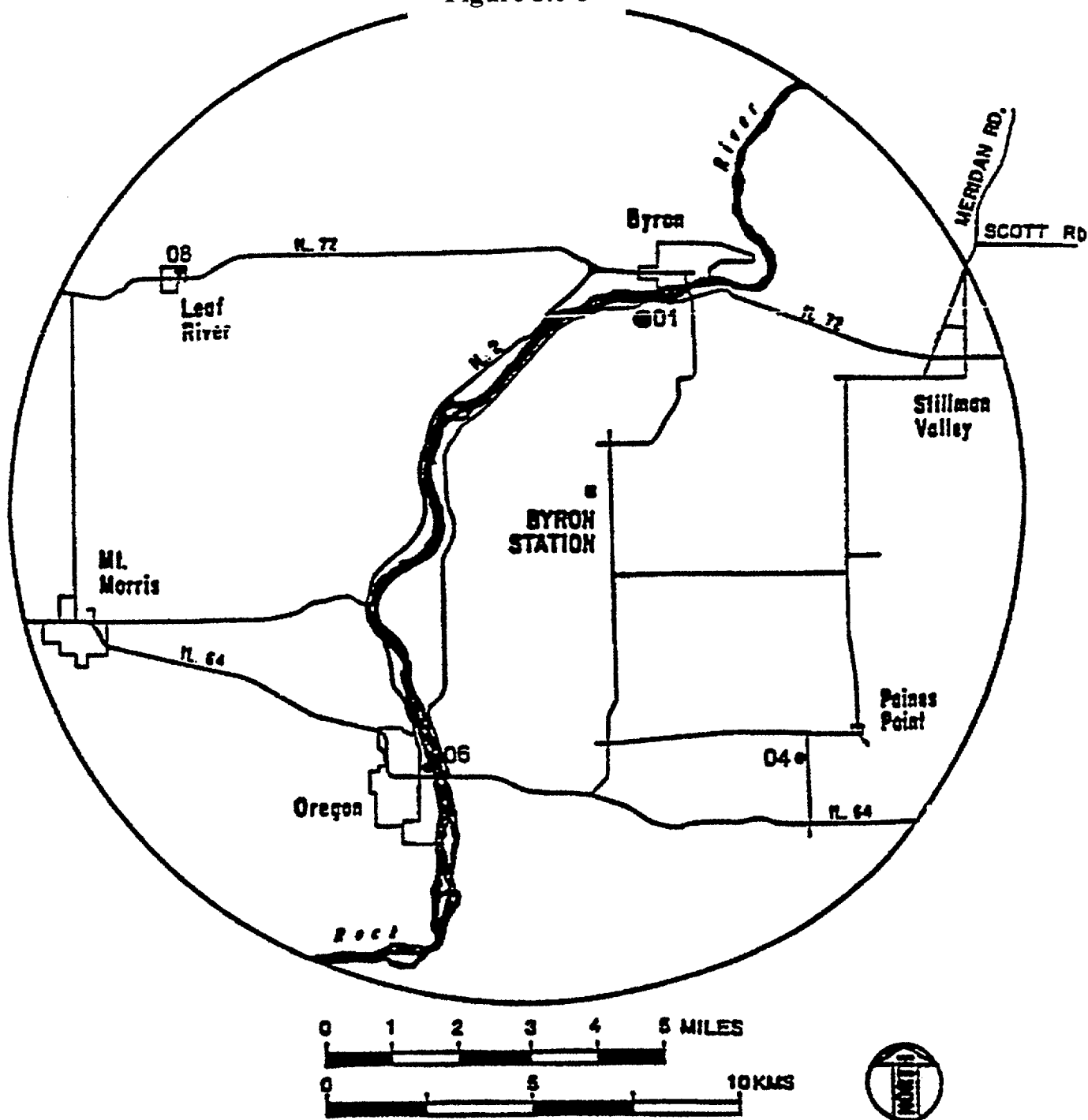
• Air Sampling Location

Byron Station

Onsite Air Sampler Locations

BY-21 Byron Nearsite North
 BY-22 Byron Nearsite East Southeast
 BY-23 Byron Nearsite South
 BY-24 Byron Nearsite Southwest

Figure 5.0-3



● Air Sampling Location

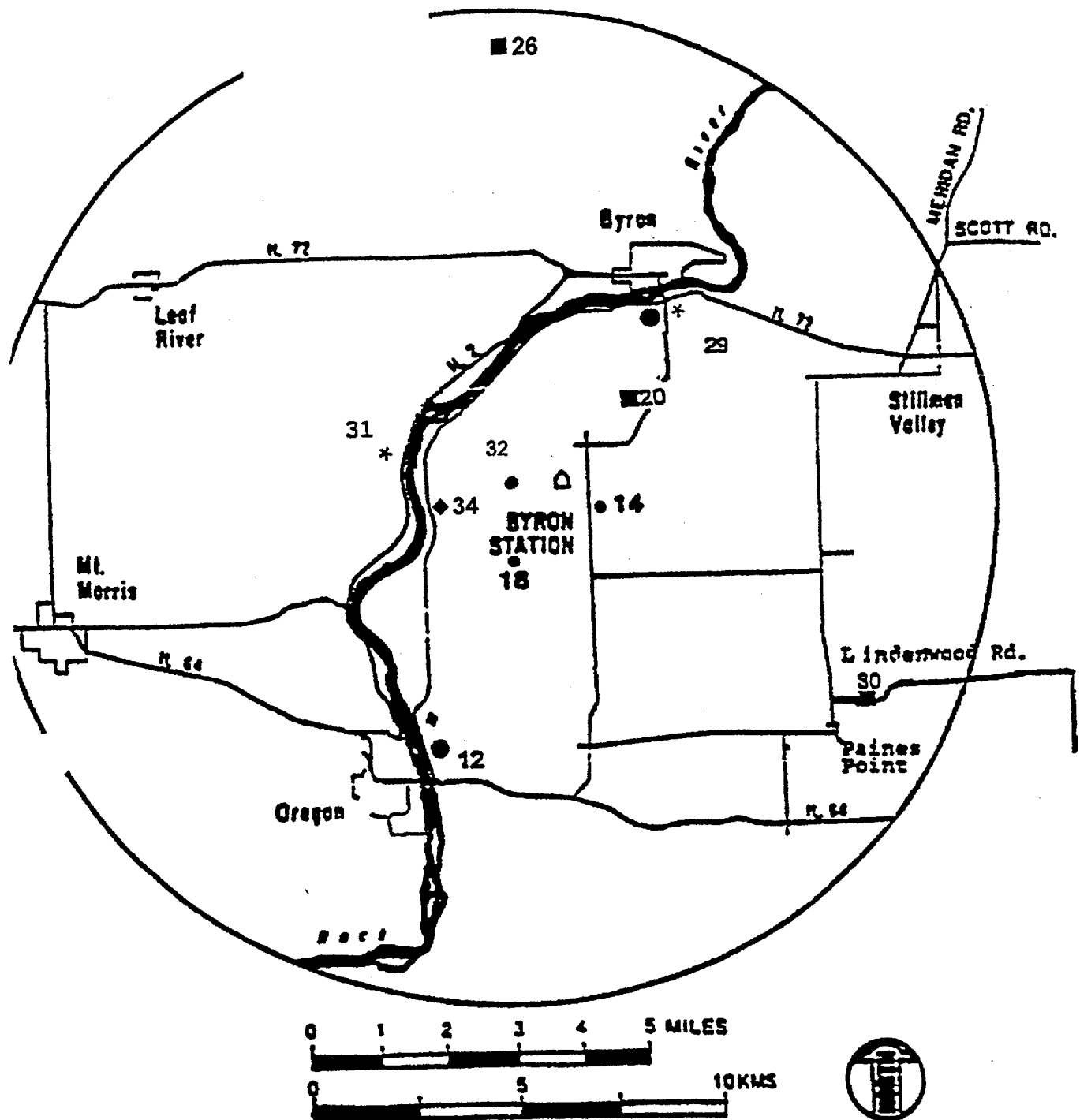
■ Byron Station

Byron Station

Offsite Air Sampling Locations

By-01 Byron
BY-04 Paynes Point
BY-06 Oregon
BY-08 Leaf River

Figure 5.0-4



- * Fish
- Milk
- ◆ Sediment
- Water
- △ Byron Station

Byron Station

Ingestion and Waterborne Exposure Pathway

- BY-12 Oregon Pool of Rock River, Downstream
- BY-14 ComEd Offsite Well
- BY-18 McCoy Farmstead
- BY-20 K. Reeverts Dairy Farm
- BY-26 Glenn Hazard's Dairy
- BY-29 Byron, Upstream
- BY-30 Don Roos Dairy
- BY-31 Byron, Discharge
- BY-32 Ron Wolford Well
- BY-34 Rock River, Downstream

TABLE 5.0-1

Byron Radiological Environmental Monitoring Locations		Air Sampling	TLD	Fish	Vegetation	Milk	Sediment	Surface Water	Well Water
BY-01	Byron	α	α	.	.	.	.	.	.
BY-04	Paynes Point	α	α	.	.	.	.	.	.
BY-06	Oregon	α	α	.	.	.	.	.	.
BY-08	Leaf River	α	α	.	.	.	.	.	.
BY-12	Oregon Pool of Rock River, Downstream	.	.	.	.	.	.	α	α
BY-14	ComEd Offsite Well	.	.	.	.	.	.	α	α
BY-18	McCoy Farmstead	.	.	.	.	.	.	.	α
BY-Quad 1	D. White	.	.	.	α	.	.	.	.
BY-Quad 2	3485 German Church Road	.	.	.	α	.	.	.	.
BY-Quad 3	German Church Road	.	.	.	α	.	.	.	.
BY-Quad 4	D.L. Hardisty	.	.	.	α	.	.	.	.
BY-Control	Walt Mueller	.	.	.	α	.	.	.	.
BY-20	K. Reeverts Dairy Farm	.	.	.	.	α	.	.	.
BY-21	Byron Near Site N	α	α	.	.	.	.	.	.
BY-22	Byron Near Site ESE	α	α	.	.	.	.	.	.
BY-23	Byron Near Site S	α	α	.	.	.	.	.	.
BY-24	Byron Near Site SW	α	α	.	.	.	.	.	.
BY-26	Glen Hazzard's Dairy	.	.	.	.	α	.	.	.
BY-29	Byron, Upstream	.	.	α	.	.	.	α	.
BY-30	Don Roos Dairy	.	.	.	.	α	.	.	.
BY-31	Byron, Discharge	.	.	α	.	.	.	.	.
BY-32	Ron Wolford	.	.	.	.	.	.	.	α
BY-34	Rock River Downstream ^a	.	.	.	.	.	α	.	.

CENSUS
Dairy
Residence
Cattle

^a Location added in May 1999.

TABLE 5.0-2

BYRON STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

1. AIR SAMPLERS

Distance

TABLE 5.0-2

BYRON STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

1. AIR SAMPLERS

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-01	Byron	3.0	N	A
BY-04	Paynes Point	5.0	SE	G
BY-06	Oregon	4.7	SSW	K
BY-08 (C)	Leaf River	6.8	WNW	P
BY-21	Byron Nearsite North	0.3	N	A
BY-22	Byron Nearsite East-Southeast	0.4	ESE	F
BY-23	Byron Nearsite South	0.6	S	J
BY-24	Byron Nearsite Southwest	0.6	SW	L

2. TLDs

a. Same as No. 1.

b. Special TLD Locations

<u>Site Code</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
Inner Ring			
BY-101-1,2	0.3	N	A
BY-102-1	0.9	NNE	B
BY-102-2	1.0	NNE	B
BY-103-1,2	1.7	NE	C
BY-104-1,2	1.5	ENE	D
BY-105-1,2	1.3	E	E
BY-106-1,2	1.4	ESE	F
BY-107-1,2	1.4	SE	G
BY-108-1	0.7	SSE	H
BY-108-2	0.6	SSE	H
BY-109-1,2	0.6	S	J
BY-110-1,2	0.6	SSW	K
BY-111-3	0.7	SW	L
BY-111-4	0.8	SW	L
BY-112-3,4	0.8	WSW	M
BY-113-1,2	0.7	W	N
BY-114-1,2	0.8	WNW	P
BY-115-1,2	1.0	NW	Q
BY-116-1,2	1.4	NNW	R

^a Control (background) locations are denoted by a "C" after site code. All other locations are indicators.

TABLE 5.0-2 (continued)

BYRON STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

2. TLDs

b. Special TLD Locations (continued)

<u>Site Code</u> ^a	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
Outer Ring			
BY-201-3	4.5	N	A
BY-201-4	4.4	N	A
BY-202-1	4.3	NNE	B
BY-202-2	4.8	NNE	B
BY-203-1	4.8	NE	C
BY-203-2	4.7	NE	C
BY-204-1	4.2	ENE	D
BY-204-2	4.1	ENE	D
BY-205-1,2	3.8	E	E
BY-206-1	4.1	ESE	F
BY-206-2	4.4	ESE	F
BY-207-1	4.2	SE	G
BY-207-2	3.6	SE	G
BY-208-1	4.0	SSE	H
BY-208-2	3.7	SSE	H
BY-209-1,4	3.7	S	J
BY-210-3,4	3.9	SSW	K
BY-211-1,4	4.9	SW	L
BY-212-1,4	4.7	WSW	M
BY-213-1	4.7	W	N
BY-213-4	4.6	W	N
BY-214-1	4.6	WNW	P
BY-214-4	4.9	WNW	P
BY-215-1	5.3	NW	Q
BY-215-4	5.2	NW	Q
BY-216-1	4.6	NNW	R
BY-216-2	4.8	NNW	R

3. MILK

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-20	K. Reeverts Dairy Farm	2.0	NE	C
BY-26 (C)	Glen Hazzard's Dairy Farm	12.0	N	A
BY-30	Don Roos Dairy	5.3	SE	G

^a Control (background) locations are denoted by a "C" after site code. All other locations are indicators.

TABLE 5.0-2 (continued)

BYRON STATION
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

4. VEGETABLES

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-Quad 1	D. White	3.0	N	A
BY-Quad 2	3485 German Church Road	0.6	SSE	H
BY-Quad 3	E. Thurm	3.6	S	S
BY-Quad 4	D.L. Hardisty	2.5	NNW	R
BY-Control (C)	Walt Mueller	15.6	N	A

5. GROUND/WELL WATER

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-14	ComEd Offsite Well	0.5	ESE	F
BY-18	McCoy Farmstead	0.7	SW	L
BY-32	Ron Wolford Well	1.8	W	N

6. SURFACE WATER

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-12	Oregon Pool of Rock River, Downstream	4.5	SSW	K
BY-29 (C)	Byron, Upstream	3.0	N	A

7. FISH

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-29 (C)	Byron, Upstream	3.0	N	A
BY-31	Byron, Discharge	2.2	WNW	P

8. SEDIMENTS

<u>Site Code</u> ^a	<u>Location</u>	<u>Distance</u> <u>(miles)</u>	<u>Direction</u>	<u>Sector</u>
BY-12	Oregon Pool of Rock River, Downstream	4.5	SSW	K
BY-34	Oregon Pool of Rock River, Downstream	0.6	W	N

^a Control (background) locations are denoted by a "C" after site code. All other locations are indicators.

TABLE 5.0-2 (continued)

BYRON STATION
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

Sample Media	Location		Collection Frequency	Type of Analysis	Frequency of Analysis
	Code ^a	Site			
1. Airborne Particulates	Onsite, Nearfield and Control		Filter exchange weekly	Gross Beta Gamma Isot.	Weekly Quarterly Composite (or if weekly gross beta in a sample exceeds 5X the average concentration of preceding calendar quarter).
	BY-08 (C)	Leaf River			
	BY-21	Nearsite N			
	BY-22	Nearsite ESE			
	BY-23	Nearsite S			
	BY-24	Nearsite SW			
	Far Field			Gamma Isot.	If gross beta in a sample exceeds 10 times the yearly mean of control samples and radioactivity is confirmed as having its origin in airborne effluents from station.
	BY-01	Byron			
	BY-04	Paynes Point			
	BY-06	Oregon			
2. Airborne Iodine	Same as 1.		Canister exchange biweekly	I-131	Biweekly
3. Air Sampling Train	Same as 1.		-	Test and Maintenance	Weekly
4. TLDs	a.	Same as 1. (two TLDs per location)	Quarterly	Gamma	Quarterly
	b.	BY-101-1,2 Inner Ring			
		102-1,2			
		103-1,2			
		104-1,2			
		105-1,2			
		106-1,2			
		107-1,2			
		108-1,2			
		109-1,2			
		110-1,2			
		111-3,4			
		112-3,4			
		113-1,2			
		114-1,2			
		115-1,2			
		116-1,2			
	c.	BY-201-3,4 Outer Ring			
		202-1,2			
		203-1,2			
		204-1,2			
		205-1,2			
		206-1,2			
		207-1,2			
		208-1,2			
		209-1,4			
		210-3,4			
		211-1,4			
		212-1,4			

^a Control (background) locations are denoted by a "C" in this column. All other location are indicators.

TABLE 5.0-2 (continued)

BYRON STATION
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

Sample Media	Location Code ^a	Site	Collection Frequency	Type of Analysis	Frequency of Analysis
4. TLDs (continued)	Outer Ring BY-213-1,4 214-1,4 215-1,4 216-1,2		Quarterly	Gamma	Quarterly
5. Milk	BY-20 BY-26 (C) BY-30	K. Reevert's Dairy G. Hazzard's Dairy D. Roos Dairy	Biweekly: May-October Monthly: November-April	I-131 Gamma Isot.	Biweekly: May-October Monthly: November-April
6. Vegetables	Quad 1 Quad 2 Quad 3 Quad 4 Control	D. White 3485 German Church Road E. Thurm D. L. Hardisty W. Mueller	Annually - two varieties from each location as available at harvest.	Gamma Isot. I-131	Annually Annually, on broad leaf vegetation.
7. Ground/Well Water	BY-14 BY-18 BY-32	ComEd Offsite McCoy Farm Wolford Well	Quarterly	Gamma Isot. Tritium	Quarterly
8. Surface Water	BY-12 BY-29 (C)	Oregon Pool of Rock River Downstream Byron, Upstream	Weekly	Gross Beta Gamma Isot. Tritium	Monthly composite. Monthly composite. Quarterly composite.
9. Fish (at least two species)	BY-29 (C) BY-31	Byron, Upstream Byron, Discharge	Two times/year	Gamma Isot.	Two times/year on edible portions only.
10. Sediments	BY-12 BY-34	Oregon Pool of Rock River Downstream Rock River Downstream	Semiannually	Gamma Isot.	Semiannually
11. Land Use Census	Milch Animals a. Site Boundary to 2 miles b. 2 miles to 6.2 miles c. At dairies listed in Item 5.		- - -	a. Enumeration by a door to door or equivalent counting technique. b. Using referenced information from county agricultural agents or other reliable sources. c. Inquire as to feeding practices: 1. Pasture only.	Annually during grazing season. Annually during grazing season.

^a Control (background) locations are denoted by a "C" in this column. All other location are indicators.

TABLE 5.0-2 (continued)

BYRON STATION
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

Sample Media	Location		Collection Frequency	Type of Analysis	Frequency of Analysis
	Code ^a	Site			
13. Land Use					
Census (continued)				2. Feed and chop only.	
				3. Pasture and feed: if both, ask farmer to estimate fraction of food from pasture: <25%, 25-50%, 50-75%, or >75%.	
Nearest Residence		In all sectors up to 6.2 miles.	-	-	Annually during grazing season.

^a Control (background) locations are denoted by a "C" in this column. All other location are indicators.

Table 5.0-3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: Byron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 1st Quarter 1999

(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results
Air Particulates (pCi/m ³)	Gross Beta	65	0.01	0.022 (52/52) (0.013-0.044)	BY-08, Leaf River 6.8 mi. WNW, Sector P	0.023 (13/13) (0.015-0.042)	0.023 (13/13) (0.015-0.042)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD	-	-	<LLD	0
	Cs-137		0.01	<LLD	-	-	<LLD	0
	Other Gammas		0.01-0.04	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m ³)	I-131	30	0.07	<LLD	-	-	<LLD	0
Milk (pCi/L)	I-131	9	5	<LLD	-	-	<LLD	0
	Gamma Spec.	9						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Ba/La-140		15	<LLD	-	-	<LLD	0
	Other Gammas		15-30	<LLD	-	-	<LLD	0
Surface Water (pCi/L)	Gross Beta	6	4	5.4 (1/3)	BY-12, Oregon Pool of Rock River, 4.5 mi. SSW, Sector K	5.4 (1/3)	4.9 (1/3)	0
	Gamma Spec.	6						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	421 (1/1)	BY-12, Oregon Pool of Rock River, 4.5 mi. SSW, Sector K	421 (1/1)	<LLD	0
Well Water (pCi/L)	Tritium	3	200	<LLD	-		None	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	None	0
	Cs-137		18	<LLD	-	-	None	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	14.3 (78/78) (10.6-19.5)	BY-212-1 4.7 mi. WSW, Sector M	19.5 (1/1)	13.5 (2/2) (13.4-13.6)	0

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.

Table 5.0-4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: Byron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 2nd Quarter 1999

(County, State)

(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results
Air Particulates (pCi/m ³)	Gross Beta	65	0.01	0.018 (52/52) (0.012-0.029)	BY-22, Nearsite ESE 0.4 mi. ESE, Sector F	0.019 (13/13) (0.012-0.029)	0.018 (13/13) (0.011-0.028)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD	-	-	<LLD	0
	Cs-137		0.01	<LLD	-	-	<LLD	0
	Other Gammas		0.01-0.04	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m ³)	I-131	35	0.07	<LLD	-	-	<LLD	0
Milk (pCi/L)	I-131	18	0.5/5.0 ^b	<LLD	-	-	<LLD	0
	Gamma Spec.	18						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Ba/La-140		15	<LLD	-	-	<LLD	0
	Other Gammas		15-30	<LLD	-	-	<LLD	0
Fish (pCi/g wet)	Gamma Spec.	10						
	Cs-134		0.10	<LLD	-	-	<LLD	0
	Cs-137		0.10	<LLD	-	-	<LLD	0
	Other ODCM- Required Gammas		0.13-0.26	<LLD	-	-	<LLD	0
	Other Gammas		0.20-0.30	<LLD	-	-	<LLD	0
Sediments (pCi/g wet)	Gamma Spec.	2						
	Cs-134		0.15	<LLD	-	-	None	0
	Cs-137		0.18	<LLD	-	-	None	0
	Other Gammas		0.10-0.60	<LLD	-	-	None	0
Surface Water (pCi/L)	Gross Beta	6	4	<LLD	-	-	<LLD	0
	Gamma Spec.	6						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	542 (1/1)	BY-12, Oregon Pool of Rock River, Downstream 4.5 mi. SSW, Sector K	542 (1/1)	<LLD	0

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.^b 0.5 pCi/L (May-October); 5.0 pCi/L (November-April).

Table 5.0-4 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: BYron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 2nd Quarter 1999

(County, State)

(County, State)								
Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results
Well Water (pCi/L)	Tritium	3	200	<LLD	-	-	None	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	None	0
	Cs-137		18	<LLD	-	-	None	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	16.2 (78/78) (12.2-22.2)	BY-206-1 4.2 mi. ESE, Sector F	22.2 (1/1)	14.6 (2/2) (14.6-14.7)	0

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.

Table 5.0-5

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: Byron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 3rd Quarter 1999

(County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results	
Air Particulates (pCi/m ³)	Gross Beta	65	0.01	0.026 (52/52) (0.016-0.043)	BY-08, Leaf River 6.8 mi. WNW, Sector P	0.029 (13/13) (0.018-0.042)	0.029 (13/13) (0.018-0.042)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD	-	-	<LLD	0
	Cs-137		0.01	<LLD	-	-	<LLD	0
	Other Gammas		0.01-0.04	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m ³)	I-131	30	0.07	<LLD	-	-	<LLD	0
Milk (pCi/L)	I-131	18	0.5	<LLD	-	-	<LLD	0
	Gamma Spec.	18						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Ba/La-140		15	<LLD	-	-	<LLD	0
	Other Gammas		15-30	<LLD	-	-	<LLD	0
Vegetation (pCi/g wet)	I-131	5	0.06	<LLD	-	-	<LLD	0
	Gamma Spec.	10						
	Cs-134		0.06	<LLD	-	-	<LLD	0
	Cs-137		0.08	<LLD	-	-	<LLD	0
	Other Gammas		0.01-0.10	<LLD	-	-	<LLD	0
Surface Water (pCi/L)	Gross Beta	6	4	4.4 (1/3)	BY-29, Byron, Upstream of Intake	5.1 (1/3)	5.1 (1/3)	0
	Gamma Spec.	6			3.0 mi. N, Sector A			
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	1,319 (1/1)	BY-12, Oregon Pool of Rock River, 4.5 mi. SSW, Sector K	1,319 (1/1)	<LLD	1

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.

Table 5.0-5 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: Byron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 3rd Quarter 1999

(County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results	
Well Water (pCi/L)	Tritium	3	200	<LLD	-	-	None	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	None	0
	Cs-137		18	<LLD	-	-	None	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	16.0 (78/78) (10.9-19.1)	BY-102-2 1.0 mi. NNE, Sector B	19.1 (1/1)	14.1 (2/2) (14.0-14.2)	0

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.

Table 5.0-6

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: Byron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 4th Quarter 1999

(County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results
Air Particulates (pCi/m ³)	Gross Beta	65	0.01	0.033 (52/52) (0.014-0.050)	BY-24 ^b , Byron, Nearsite SW, 0.6 mi. SW, Sector L	0.034 (13/13) (0.014-0.050)	0
	Gamma Spec.	5				(0.015-0.047)	
	Cs-134		0.01	<LLD	-	<LLD	0
	Cs-137		0.01	<LLD	-	<LLD	0
	Other Gammas		0.01-0.04	<LLD	-	<LLD	0
Airborne Iodine (pCi/m ³)	I-131	35	0.07	<LLD	-	<LLD	0
Milk (pCi/L)	I-131	12	0.5/5.0 ^c	<LLD	-	<LLD	0
	Gamma Spec.	12					
	Cs-134		15	<LLD	-	<LLD	0
	Cs-137		18	<LLD	-	<LLD	0
	Ba/La-140		15	<LLD	-	<LLD	0
	Other Gammas		15-30	<LLD	-	<LLD	0
Fish (pCi/g wet)	Gamma Spec.	9					
	Cs-134		0.10	<LLD	-	<LLD	0
	Cs-137		0.10	<LLD	-	<LLD	0
	Other ODCM- Required Gammas		0.13-0.26	<LLD	-	<LLD	0
	Other Gammas		0.20-0.30	<LLD	-	<LLD	0
Sediments (pCi/g wet)	Gamma Spec.	2					
	Cs-134		0.15	<LLD	-	None	0
	Cs-137		0.18	<LLD	-	None	0
	Other Gammas		0.10-0.60	<LLD	-	None	0
Surface Water (pCi/L)	Gross Beta	6	4	<LLD	-	<LLD	0
	Gamma Spec.	6					
	Cs-134		15	<LLD	-	<LLD	0
	Cs-137		18	<LLD	-	<LLD	0
	Other ODCM- Required Gammas		15-30	<LLD	-	<LLD	0
	Tritium	2	200	689 (1/1)	BY-12, Oregon Pool of Rock River 4.5 mi. SSW, Sector K	689 (1/1)	1

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.^b Locations BY-24 and BY-08 (Control) had identical means of 0.034 pCi/Lm³. Both are detailed in this summary.^c 0.5 pCi/L (May-October); 5.0 pCi/L (November-April).

Table 5.0-6 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility: Byron Nuclear Power StationDocket No. 50-454, 50-455Location of Facility: Ogle, IllinoisReporting Period: 4th Quarter 1999

(County, State)

(County, State)								
Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean ^a Range	Location with Highest Quarterly Mean	Highest Mean ^a Range	Control Locations Mean ^a Range	Number of Non-routine Results
Well Water (pCi/L)	Tritium	5	200	<LLD	-	-	None	0
	Gamma Spec.	5						
	Cs-134		15	<LLD	-	-	None	0
	Cs-137		18	<LLD	-	-	None	0
	Other ODCM- Required Gammas		15-30	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	15.6 (78/78) (10.5-18.8)	By-215-1 5.3 mi. NW, Sector Q	18.8 (1/1)	14.4 (2/2) (14.1-14.7)	0

^a Mean and range based on detectable measurements only. Fractions indicated in parentheses.

BYRON

APPENDIX II

METEOROLOGICAL DATA

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	7	0	0	10
NNE	0	0	1	9	0	0	10
NE	0	0	0	2	1	0	3
ENE	0	0	0	1	1	1	3
E	0	2	9	1	0	0	12
ESE	1	2	1	2	3	0	9
SE	0	2	3	5	2	0	12
SSE	1	0	1	6	2	0	10
S	0	1	3	6	6	3	19
SSW	0	0	1	1	4	7	13
SW	0	0	0	1	2	0	3
WSW	0	0	0	0	0	0	0
W	0	0	1	4	1	0	6
WNW	0	0	7	5	2	0	14
NW	0	0	4	6	6	0	16
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	2	7	34	56	30	11	140

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	4	0	0	7
NNE	0	3	4	9	1	0	17
NE	0	2	6	0	2	0	10
ENE	1	0	4	0	0	0	5
E	2	3	3	6	1	0	15
ESE	0	6	1	3	2	0	12
SE	0	4	0	3	1	0	8
SSE	0	3	3	3	0	0	9
S	0	0	0	4	5	0	9
SSW	0	2	0	0	1	2	5
SW	0	0	1	2	1	0	4
WSW	1	1	0	2	0	0	4
W	0	1	4	5	1	2	13
WNW	0	1	4	4	4	2	15
NW	0	0	2	3	11	1	17
NNW	0	0	7	1	2	2	12
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	26	42	49	32	9	162

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	7	1	2	1	13
NNE	0	3	4	6	8	0	21
NE	0	1	3	1	3	0	8
ENE	1	1	2	2	2	2	10
E	0	2	2	5	2	7	18
ESE	0	0	0	1	1	0	2
SE	0	3	0	0	0	0	3
SSE	0	2	1	2	2	3	10
S	0	4	1	5	1	1	12
SSW	2	3	1	0	1	2	9
SW	1	1	0	2	1	0	5
WSW	0	1	1	2	1	2	7
W	0	3	6	6	16	7	38
WNW	0	4	3	17	15	4	43
NW	0	0	0	17	7	0	24
NNW	1	0	3	3	8	1	16
VARIABLE	0	0	0	0	0	0	0
TOTAL	5	30	34	70	70	30	239

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - NEUTRAL (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	1	10	18	13	12	0	54
NNE	1	9	19	18	13	1	61
NE	1	3	13	14	8	8	47
ENE	2	6	6	13	17	13	57
E	3	7	10	29	20	12	81
ESE	2	4	0	9	21	12	48
SE	2	3	8	4	4	1	22
SSE	1	13	10	8	7	5	44
S	1	11	4	16	16	18	66
SSW	0	6	3	9	9	7	34
SW	3	5	17	12	10	2	49
WSW	0	5	29	12	13	2	61
W	2	7	33	35	29	17	123
WNW	0	5	19	34	26	15	99
NW	4	9	7	27	15	4	66
NNW	3	9	8	16	16	1	53
VARIABLE	0	0	0	0	0	0	0
TOTAL	26	112	204	269	236	118	965

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	6	8	16	1	0	31
NNE	1	4	9	11	0	0	25
NE	1	6	12	7	5	0	31
ENE	0	3	2	9	2	3	19
E	0	1	7	9	1	0	18
ESE	0	7	4	2	3	2	18
SE	2	2	7	1	4	3	19
SSE	1	2	3	14	15	10	45
S	3	2	5	17	17	5	49
SSW	0	4	3	8	28	7	50
SW	1	0	5	8	10	4	28
WSW	0	1	8	11	0	1	21
W	0	3	4	7	2	2	18
WNW	0	4	5	10	1	0	20
NW	0	1	3	16	2	0	22
NNW	0	4	3	12	1	0	20
VARIABLE	0	0	0	0	0	0	0
TOTAL	9	50	88	158	92	37	434

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	2	5	0	0	9
NNE	2	6	11	7	0	0	26
NE	0	3	1	4	1	0	9
ENE	0	0	1	1	0	0	2
E	2	0	2	4	1	0	9
ESE	0	1	4	2	3	2	12
SE	2	3	1	3	0	1	10
SSE	0	0	3	1	8	6	18
S	0	1	0	2	4	7	14
SSW	0	0	1	3	5	3	12
SW	0	1	1	3	0	0	5
WSW	2	1	1	7	0	0	11
W	2	1	0	4	0	0	7
WNW	0	1	2	4	0	0	7
NW	1	0	2	2	0	0	5
NNW	1	1	1	0	0	0	3
VARIABLE	0	0	0	0	0	0	0
TOTAL	12	21	33	52	22	19	159

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1999

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	1	0	2	0	0	0	3
NE	0	1	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	1	1	1	3
SE	0	0	0	1	0	1	2
SSE	0	1	2	2	4	1	10
S	0	0	1	2	1	1	5
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	1	0	1	0	0	2
W	0	0	1	0	0	0	1
WNW	0	2	0	0	0	0	2
NW	1	2	0	0	0	0	3
NNW	1	1	0	0	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	10	6	7	6	4	37

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 23

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	1	0	2
ENE	0	1	0	0	0	0	1
E	0	0	1	0	0	0	1
ESE	0	1	3	0	0	0	4
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	3	4	0	1	0	8

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	0	0	0	0	3
NNE	0	0	2	0	0	0	2
NE	0	0	1	0	2	1	4
ENE	0	0	2	2	0	0	4
E	0	1	2	0	0	0	3
ESE	0	1	2	0	0	3	6
SE	0	1	8	0	0	0	9
SSE	0	0	1	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	2	2
SW	0	0	0	1	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	1	1	3	0	0	5
NW	0	0	0	3	1	0	4
NNW	0	1	2	0	0	0	3
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	8	21	9	3	6	47

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	2	0	0	5
NNE	0	1	3	0	0	0	4
NE	0	0	2	2	0	1	5
ENE	0	3	2	0	3	0	8
E	0	1	9	0	2	0	12
ESE	0	1	3	2	1	3	10
SE	0	1	9	3	0	1	14
SSE	0	0	6	0	0	1	7
S	0	2	1	1	1	3	8
SSW	0	0	1	2	0	2	5
SW	0	0	0	3	1	0	4
WSW	0	0	0	0	0	0	0
W	0	0	1	1	0	0	2
WNW	0	2	3	3	0	0	8
NW	0	1	1	2	3	0	7
NNW	0	1	2	4	1	0	8
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	13	46	25	12	11	107

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - NEUTRAL (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	3	4	15	13	10	4	49
NNE	1	8	9	8	6	4	36
NE	2	1	7	9	24	9	52
ENE	2	10	9	21	29	21	92
E	7	10	25	20	19	5	86
ESE	1	7	12	11	6	1	38
SE	2	4	19	15	2	2	44
SSE	3	8	25	33	11	13	93
S	0	14	21	26	12	2	75
SSW	1	12	22	29	15	6	85
SW	4	10	6	18	14	5	57
WSW	1	8	5	14	7	5	40
W	2	21	10	21	9	6	69
WNW	1	10	11	32	10	9	73
NW	2	9	13	28	21	6	79
NNW	2	2	7	16	8	0	35
VARIABLE	0	0	0	0	0	0	0
TOTAL	34	138	216	314	203	98	1003

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	8	8	0	0	18
NNE	0	1	6	7	0	0	14
NE	1	3	6	11	3	2	26
ENE	0	5	7	19	16	4	51
E	1	7	21	37	9	0	75
ESE	2	3	12	22	20	8	67
SE	0	2	17	28	11	7	65
SSE	0	3	8	29	42	8	90
S	0	4	11	33	22	0	70
SSW	1	5	15	2	10	0	33
SW	1	2	7	6	4	1	21
WSW	0	4	7	5	0	1	17
W	0	4	11	17	2	1	35
WNW	2	2	7	10	1	0	22
NW	0	6	19	10	1	0	36
NNW	2	7	10	7	1	0	27
VARIABLE	0	0	0	0	0	0	0
TOTAL	10	60	172	251	142	32	667

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	4	0	0	0	4
NNE	0	3	3	2	0	0	8
NE	0	0	0	0	0	0	0
ENE	2	1	0	2	0	0	5
E	1	2	11	3	0	0	17
ESE	0	1	2	18	7	0	28
SE	0	2	4	15	15	0	36
SSE	0	1	6	10	21	1	39
S	0	1	4	8	5	0	18
SSW	0	5	13	6	0	0	24
SW	0	1	4	9	1	0	15
WSW	0	1	5	10	0	0	16
W	1	1	3	5	0	0	10
WNW	0	1	0	1	0	0	2
NW	0	4	3	6	0	0	13
NNW	0	4	2	0	0	0	6
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	28	64	95	49	1	241

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1999

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	1	1	0	5
NNE	0	0	0	1	0	0	1
NE	0	0	3	3	0	0	6
ENE	0	1	0	0	0	0	1
E	0	6	0	1	0	0	7
ESE	0	0	0	1	3	0	4
SE	0	1	0	9	7	0	17
SSE	0	1	1	7	6	0	15
S	0	0	0	2	1	0	3
SSW	0	1	2	5	2	0	10
SW	0	1	1	1	0	0	3
WSW	0	0	0	4	0	0	4
W	0	2	1	0	0	0	3
WNW	0	1	1	1	0	0	3
NW	0	2	3	3	0	0	8
NNW	0	1	2	1	0	0	4
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	17	17	40	20	0	94

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 17

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	27	9	0	0	36
NNE	0	0	11	12	0	0	23
NE	0	1	6	3	0	0	10
ENE	0	5	1	3	0	0	9
E	0	3	1	0	0	0	4
ESE	0	1	3	0	0	0	4
SE	0	3	7	5	0	0	15
SSE	0	3	8	5	0	0	16
S	1	4	4	1	1	0	11
SSW	1	4	3	8	14	3	33
SW	0	1	12	3	3	0	19
WSW	0	1	8	14	2	0	25
W	0	1	8	10	12	0	31
WNW	0	0	4	11	3	0	18
NW	0	3	10	12	0	0	25
NNW	0	6	22	8	0	0	36
VARIABLE	0	0	0	0	0	0	0
TOTAL	2	36	135	104	35	3	315

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	6	2	0	0	8
NNE	0	0	3	8	0	0	11
NE	0	0	2	1	0	0	3
ENE	0	1	1	3	0	0	5
E	0	0	1	0	0	0	1
ESE	0	0	0	1	0	0	1
SE	0	0	1	0	0	0	1
SSE	0	0	3	2	0	0	5
S	2	2	5	3	2	0	14
SSW	0	3	1	9	4	0	17
SW	0	1	4	2	1	0	8
WSW	1	1	4	2	0	0	8
W	0	1	4	4	0	0	9
WNW	0	0	1	1	0	0	2
NW	0	2	1	3	0	0	6
NNW	1	2	6	0	1	0	10
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	13	43	41	8	0	109

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	2	4	0	0	9
NNE	0	0	1	3	0	0	4
NE	0	2	0	0	0	0	2
ENE	0	2	0	4	0	0	6
E	0	3	2	0	0	0	5
ESE	1	0	2	2	0	0	5
SE	0	0	5	0	0	0	5
SSE	0	2	3	1	0	0	6
S	0	2	5	5	0	0	12
SSW	0	0	2	7	3	0	12
SW	0	2	6	2	0	1	11
WSW	0	1	3	2	1	0	7
W	0	1	5	3	0	0	9
WNW	0	1	2	1	0	0	4
NW	0	1	4	5	0	0	10
NNW	0	2	3	0	1	0	6
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	22	45	39	5	1	113

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - NEUTRAL (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	1	8	12	20	1	0	42
NNE	3	5	3	19	1	0	31
NE	1	6	4	9	0	0	20
ENE	2	5	9	10	1	0	27
E	2	5	10	1	1	0	19
ESE	0	2	3	1	0	0	6
SE	0	3	8	5	1	0	17
SSE	1	2	16	10	4	0	33
S	2	16	12	18	5	0	53
SSW	2	15	12	27	16	2	74
SW	1	6	18	20	9	2	56
WSW	1	8	26	22	1	0	58
W	0	14	29	17	2	0	62
WNW	0	6	6	7	1	0	20
NW	1	11	9	10	1	0	32
NNW	2	8	15	16	0	0	41
VARIABLE	0	0	0	0	0	0	0
TOTAL	19	120	192	212	44	4	591

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	6	20	0	0	29
NNE	3	5	7	8	0	0	23
NE	0	2	4	5	0	0	11
ENE	1	1	2	4	2	0	10
E	0	2	4	1	0	0	7
ESE	0	5	7	5	0	0	17
SE	0	3	6	7	1	0	17
SSE	0	3	6	13	14	0	36
S	0	4	7	21	17	1	50
SSW	2	2	8	39	26	2	79
SW	0	4	18	27	13	0	62
WSW	1	2	20	15	3	0	41
W	0	5	18	15	1	0	39
WNW	1	0	10	4	1	0	16
NW	1	1	8	12	0	0	22
NNW	0	4	9	18	1	0	32
VARIABLE	0	0	0	0	0	0	0
TOTAL	9	46	140	214	79	3	491

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	2	0	8	7	0	0	17
NNE	2	2	5	3	0	0	12
NE	2	2	2	0	0	0	6
ENE	2	3	1	0	1	0	7
E	0	3	3	1	1	0	8
ESE	0	0	1	4	10	0	15
SE	0	0	7	13	8	1	29
SSE	0	0	8	9	9	0	26
S	0	0	4	14	9	2	29
SSW	0	1	2	9	4	0	16
SW	1	3	6	13	0	0	23
WSW	1	3	8	8	0	0	20
W	2	3	11	9	0	0	25
WNW	0	4	7	5	0	0	16
NW	1	4	10	10	0	0	25
NNW	1	2	12	6	0	0	21
VARIABLE	0	0	0	0	0	0	0
TOTAL	14	30	95	111	42	3	295

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1999

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	7	0	0	8
NNE	0	1	2	2	0	0	5
NE	1	1	0	0	0	0	2
ENE	2	1	0	0	0	0	3
E	2	1	0	0	0	0	3
ESE	0	1	2	1	6	0	10
SE	0	1	1	14	7	1	24
SSE	0	2	8	18	4	0	32
S	0	2	8	7	3	1	21
SSW	1	2	7	1	0	0	11
SW	2	2	4	4	0	0	12
WSW	1	2	7	4	0	0	14
W	2	4	7	1	0	0	14
WNW	1	5	4	1	0	0	11
NW	1	2	5	7	0	0	15
NNW	0	4	4	4	0	0	12
VARIABLE	0	0	0	0	0	0	0
TOTAL	13	31	60	71	20	2	197

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 97

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	2	0	0	2
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	2	0	2
WSW	0	0	0	0	0	1	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	1	0	1
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	0	2	3	1	6

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - NEUTRAL (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	6	11	18	15	0	50
NNE	0	4	9	2	6	0	21
NE	0	7	9	1	0	0	17
ENE	1	3	4	0	0	0	8
E	0	12	2	0	0	0	14
ESE	0	2	1	1	0	0	4
SE	0	3	8	6	9	0	26
SSE	0	2	15	23	9	2	51
S	0	3	6	23	30	7	69
SSW	1	1	19	12	18	2	53
SW	3	10	16	23	22	9	83
WSW	5	7	21	17	13	2	65
W	3	14	15	33	23	15	103
WNW	6	22	27	29	7	2	93
NW	2	9	21	18	15	7	72
NNW	2	3	4	38	20	0	67
VARIABLE	0	0	0	0	0	0	0
TOTAL	23	108	188	244	187	46	796

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	16	16	0	0	34
NNE	0	4	10	8	7	0	29
NE	2	2	3	2	0	0	9
ENE	1	4	5	4	4	0	18
E	3	5	1	3	2	0	14
ESE	1	4	3	0	7	0	15
SE	0	6	4	10	9	3	32
SSE	1	7	9	15	38	11	81
S	2	4	8	33	62	18	127
SSW	0	5	5	18	31	13	72
SW	1	4	11	21	36	7	80
WSW	2	2	17	15	5	1	42
W	1	6	26	17	4	1	55
WNW	0	4	23	13	8	4	52
NW	1	8	29	58	15	7	118
NNW	2	2	15	26	2	0	47
VARIABLE	0	0	0	0	0	0	0
TOTAL	17	69	185	259	230	65	825

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	5	19	0	0	27
NNE	1	2	6	4	0	0	13
NE	1	3	0	2	0	0	6
ENE	1	2	3	0	0	0	6
E	1	4	3	0	0	0	8
ESE	0	1	2	6	1	0	10
SE	0	0	4	6	12	1	23
SSE	0	0	5	10	13	5	33
S	0	0	5	13	16	9	43
SSW	0	0	1	15	14	0	30
SW	1	0	3	6	5	0	15
WSW	0	0	8	5	0	0	13
W	0	1	4	7	0	0	12
WNW	0	0	5	7	0	0	12
NW	1	5	10	13	0	0	29
NNW	0	3	11	19	0	0	33
VARIABLE	0	0	0	0	0	0	0
TOTAL	6	24	75	132	61	15	313

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

BYRON NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1999

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 250-30 FT)
WINDS MEASURED AT 250 FEET

WIND DIRECTION	WIND SPEED (in mph)						TOTAL
	0.9-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	7	6	0	0	17
NNE	1	0	2	0	0	0	3
NE	4	0	5	0	0	0	9
ENE	2	1	1	0	0	0	4
E	3	2	7	1	0	0	13
ESE	0	1	0	2	5	0	8
SE	1	2	1	5	5	0	14
SSE	2	0	2	4	3	0	11
S	1	1	5	3	5	0	15
SSW	1	1	3	10	8	0	23
SW	0	0	3	6	2	0	11
WSW	0	0	3	2	0	0	5
W	0	0	1	0	0	0	1
WNW	1	0	0	1	0	0	2
NW	1	2	5	3	0	0	11
NNW	0	2	5	6	0	0	13
VARIABLE	0	0	0	0	0	0	0
TOTAL	17	16	50	49	28	0	160

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 108

APPENDIX III

1999 REMP SAMPLE RESULTS

BYRON

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BYRON

LIST OF TABLES

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BYRON

1.0 INTRODUCTION

The following constitutes the current, 1999 Monthly Progress Report for the Radiological Environmental Monitoring Program conducted at the Byron Station, Byron, Illinois. Results of completed analyses are presented in the attached tables. Missing entries indicate analyses that are not completed and the results will appear in subsequent reports.

Missing tables indicate sample media scheduled for collection at a future date. Tables will appear in subsequent reports.

Data obtained in the program are well within the ranges previously encountered in the program and to be expected in the environmental media sampled.

For all gamma isotopic analyses, spectrum is computer scanned from 80 to 2048 keV. Specifically included are Mn-54, Fe-59, Co-58, Co-60, Zn-65, Zr/Nb-95, I-131, Ba/La-140, Cs-134 and Cs-137. Naturally occurring gamma-emitters, such as K-40 and Ra daughters, are frequently detected but not listed here. The data is reported in the format of $x \pm 2s; 2TPU$, where "x" is the significant result, "s" is the one standard deviation counting uncertainty, and TPU is the total propagated uncertainty at the one sigma confidence level.

Locations denoted by a "(C)" after site code refer to control locations.

All concentrations, except gross alpha and beta, are decay corrected to the time of collection.

TLD data is provided by Commonwealth Edison Company.

Deviations from Scheduled Sampling and Corrective Actions Taken

All samples were collected within the scheduled period unless noted otherwise in the Listing of Missed Samples.

Unusual Environmental Measurements:

None for 1999.

BYRON

2.0 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Expected Collection Date	Reason
SW	BY-12	01-05-99	No sample; river frozen.
SW	BY-29	01-05-99	No sample; river frozen.
SW	BY-12	01-12-99	No sample; river frozen.
SW	BY-29	01-12-99	No sample; river frozen.
SW	BY-12	01-19-99	No sample; river frozen.
SW	BY-29	01-19-99	No sample; river frozen.
SW	BY-29	01-26-99	No sample; river frozen.
TLD	Other	03-30-99	Collector found 1st Quarter TLD, BY-105-1, missing during quarterly exchange.
TLD	Other	06-29-99	Collector found 2nd Quarter TLD, BY-116-1, missing during quarterly exchange.
TLD	Other	09-30-99	Collector found 3rd Quarter TLD, BY-213-4, missing during quarterly exchange.
SW	BY-12	12-21-99	No sample; river frozen.
SW	BY-29	12-21-99	No sample; river frozen.
SW	BY-12	12-28-99	No sample; river frozen.
SW	BY-29	12-28-99	No sample; river frozen.

3.0 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
A/I	BY-23	11-16-99	Low reading of 163.7 due to removal and reinstallation of pump for annual maintenance.

BYRON

Table 1. Airborne Particulates and Iodine Cartridges
Collection: Airborne Particulates: Continuous; weekly exchange
Iodine Cartridges: Continuous, biweekly exchange
ODCM-
Required LLDs: Gross Beta = 0.01, I-131 = 0.07 pCi/m³
Units: 10⁻² pCi/m³

BY-08 (C) Leaf River							
Date Collected	Volume (m ³)	Gross Beta	I-131 ^a	Date Collected	Volume (m ³)	Gross Beta	I-131 ^a
01-05-99	286	2.8 ± 0.4; 0.6	-	07-07-99	326	1.8 ± 0.3; 0.4	-
01-12-99	284	4.2 ± 0.4; 0.9	0.4 ± 0.7; 0.7	07-13-99	244	3.4 ± 0.4; 0.7	-0.2 ± 0.6; 0.6
01-19-99	285	2.6 ± 0.3; 0.6	-	07-20-99	285	2.7 ± 0.4; 0.6	-
01-26-99	285	2.0 ± 0.3; 0.5	0.2 ± 0.5; 0.5	07-27-99	287	1.9 ± 0.4; 0.5	0.1 ± 0.6; 0.6
02-02-99	284	2.6 ± 0.4; 0.6	-	08-03-99	285	2.2 ± 0.4; 0.5	-
02-09-99	285	2.5 ± 0.3; 0.6	-0.1 ± 0.5; 0.5	08-10-99	285	2.5 ± 0.3; 0.6	-0.0 ± 0.5; 0.5
02-16-99	283	2.5 ± 0.3; 0.6	-	08-17-99	286	3.6 ± 0.4; 0.7	-
02-22-99	254	1.5 ± 0.3; 0.4	-0.6 ± 0.6; 0.6	08-24-99	285	3.1 ± 0.4; 0.7	-0.1 ± 0.4; 0.4
03-02-99	314	1.9 ± 0.3; 0.5	-	08-31-99	291	4.2 ± 0.4; 0.9	-
03-10-99	331	1.5 ± 0.3; 0.4	-0.4 ± 0.5; 0.5	09-07-99	278	4.2 ± 0.4; 0.9	0.2 ± 0.5; 0.5
03-17-99	281	1.9 ± 0.3; 0.5	-	09-14-99	285	2.6 ± 0.3; 0.6	-
03-23-99	235	1.9 ± 0.4; 0.5	0.0 ± 0.5; 0.5	09-21-99	284	2.9 ± 0.4; 0.6	0.5 ± 0.6; 0.6
03-30-99	282	1.8 ± 0.4; 0.5	-	09-29-99	325	2.7 ± 0.4; 0.6	-
01-04-00	250	3.5 ± 0.4; 0.8	-	3rd Qtr. Mean±s.d.		2.9±0.8	0.1±0.2
1st Qtr. Mean±s.d.		2.4±0.8	-0.1±0.4	10-05-99	243	1.5 ± 0.4; 0.4	-0.1 ± 0.6; 0.6
04-06-99	284	1.7 ± 0.3; 0.4	0.2 ± 0.7; 0.7	10-12-99	288	3.7 ± 0.4; 0.8	-
04-13-99	284	1.5 ± 0.3; 0.4	-	10-19-99	285	2.4 ± 0.4; 0.6	0.2 ± 0.8; 0.8
04-20-99	285	1.8 ± 0.4; 0.5	-0.1 ± 0.6; 0.6	10-26-99	281	1.9 ± 0.4; 0.5	-
04-27-99	291	2.1 ± 0.3; 0.5	-	11-02-99	290	4.6 ± 0.4; 0.9	-0.1 ± 0.5; 0.5
05-04-99	278	1.8 ± 0.4; 0.5	-0.0 ± 0.9; 0.9	11-09-99	283	3.8 ± 0.4; 0.8	-
05-11-99	285	1.2 ± 0.3; 0.4	-	11-16-99	286	4.4 ± 0.4; 0.9	-0.1 ± 0.8; 0.8
05-18-99	288	1.8 ± 0.3; 0.5	0.5 ± 0.5; 0.5	11-23-99	284	4.7 ± 0.5; 1.0	-
05-25-99	281	1.9 ± 0.3; 0.5	-	11-29-99	245	3.3 ± 0.4; 0.7	-0.4 ± 1.0; 1.0
06-01-99	286	1.8 ± 0.3; 0.5	-0.1 ± 0.6; 0.6	12-07-99	324	3.5 ± 0.4; 0.7	-
06-08-99	286	1.1 ± 0.3; 0.4	-	12-14-99	287	3.2 ± 0.4; 0.7	0.2 ± 0.4; 0.4
06-15-99	284	1.5 ± 0.3; 0.4	0.1 ± 0.6; 0.6	12-21-99	286	3.4 ± 0.4; 0.7	-
06-22-99	284	2.1 ± 0.4; 0.5	-	12-28-99	283	3.7 ± 0.4; 0.8	0.7 ± 0.4; 0.4
06-29-99	285	2.8 ± 0.3; 0.6	-0.2 ± 0.5; 0.5	4th Qtr. Mean±s.d.		3.4±1.0	0.1±0.3
2nd Qtr. Mean±s.d.		1.8±0.4	0.1±0.2				

^a Volume based on two week collection period.

BYRON

Table 1. Airborne Particulates and Iodine Cartridges
 Collection: Airborne Particulates: Continuous; weekly exchange
 Iodine Cartridges: Continuous, biweekly exchange
 ODCM-
 Required LLDs: Gross Beta = 0.01, I-131 = 0.07 pCi/m³
 Units: 10⁻² pCi/m³

BY-21 Byron Nearsite N							
Date Collected	Volume (m ³)	Gross Beta	I-131 ^a	Date Collected	Volume (m ³)	Gross Beta	I-131 ^a
01-05-99	286	3.1 ± 0.4; 0.7	-	07-07-99	327	2.0 ± 0.3; 0.5	-
01-12-99	284	3.7 ± 0.4; 0.8	0.1 ± 0.8; 0.8	07-13-99	242	2.5 ± 0.4; 0.6	-0.1 ± 0.5; 0.5
01-19-99	285	2.4 ± 0.3; 0.5	-	07-20-99	285	2.7 ± 0.4; 0.6	-
01-26-99	285	1.7 ± 0.3; 0.4	0.2 ± 0.5; 0.5	07-27-99	288	1.6 ± 0.4; 0.5	-0.2 ± 0.5; 0.5
02-02-99	285	2.5 ± 0.3; 0.6	-	08-03-99	284	2.2 ± 0.4; 0.5	-
02-09-99	290	2.2 ± 0.3; 0.5	0.0 ± 0.5; 0.5	08-10-99	286	2.4 ± 0.3; 0.5	0.0 ± 0.5; 0.5
02-16-99	283	2.4 ± 0.3; 0.5	-	08-17-99	285	2.8 ± 0.4; 0.6	-
02-22-99	253	1.5 ± 0.3; 0.4	-0.1 ± 0.8; 0.8	08-24-99	286	2.5 ± 0.3; 0.6	0.1 ± 0.5; 0.5
03-02-99	314	1.8 ± 0.3; 0.5	-	08-31-99	291	3.3 ± 0.4; 0.7	-
03-10-99	331	1.8 ± 0.3; 0.5	0.5 ± 0.5; 0.5	09-07-99	280	3.7 ± 0.4; 0.8	0.0 ± 0.7; 0.7
03-17-99	281	1.9 ± 0.3; 0.5	-	09-14-99	284	2.2 ± 0.3; 0.5	-
03-23-99	248	1.8 ± 0.4; 0.5	0.4 ± 0.6; 0.6	09-21-99	283	2.5 ± 0.4; 0.6	-0.2 ± 0.7; 0.7
03-30-99	282	1.6 ± 0.3; 0.4	-	09-29-99	326	1.9 ± 0.3; 0.5	-
01-04-00	287	3.2 ± 0.4; 0.7	-	3rd Qtr. Mean±s.d.		2.5±0.5	-0.1±0.1
1st Qtr. Mean±s.d.		2.3±0.7	0.2±0.2	10-05-99	242	1.8 ± 0.4; 0.5	-0.3 ± 0.5; 0.5
04-06-99	286	2.1 ± 0.3; 0.5	0.0 ± 1.1; 1.1	10-12-99	289	3.7 ± 0.4; 0.8	-
04-13-99	283	1.6 ± 0.3; 0.4	-	10-19-99	284	2.2 ± 0.4; 0.6	-0.8 ± 1.0; 1.0
04-20-99	285	2.0 ± 0.4; 0.5	0.2 ± 0.6; 0.6	10-26-99	281	2.0 ± 0.4; 0.5	-
04-27-99	291	2.2 ± 0.3; 0.5	-	11-02-99	291	4.3 ± 0.4; 0.9	0.0 ± 0.5; 0.5
05-04-99	277	1.6 ± 0.3; 0.4	0.5 ± 0.8; 0.8	11-09-99	283	2.8 ± 0.4; 0.6	-
05-11-99	284	1.5 ± 0.3; 0.4	-	11-16-99	286	4.6 ± 0.4; 0.9	-0.2 ± 0.9; 0.9
05-18-99	288	1.9 ± 0.3; 0.5	-0.2 ± 0.5; 0.5	11-23-99	283	4.1 ± 0.5; 0.9	-
05-25-99	281	1.7 ± 0.3; 0.4	-	11-29-99	246	3.5 ± 0.4; 0.8	0.7 ± 0.8; 0.8
06-01-99	287	1.8 ± 0.3; 0.5	-0.2 ± 0.7; 0.7	12-07-99	323	3.0 ± 0.3; 0.6	-
06-08-99	285	1.6 ± 0.3; 0.4	-	12-14-99	287	3.0 ± 0.4; 0.7	-0.0 ± 0.4; 0.4
06-15-99	284	1.5 ± 0.3; 0.4	-0.7 ± 1.0; 1.0	12-21-99	286	2.9 ± 0.4; 0.6	-
06-22-99	285	1.6 ± 0.3; 0.4	-	12-28-99	284	3.5 ± 0.4; 0.8	0.8 ± 0.4; 0.4
06-29-99	285	2.6 ± 0.3; 0.6	-0.2 ± 0.8; 0.8	4th Qtr. Mean±s.d.		3.2±0.9	0.0±0.6
2nd Qtr. Mean±s.d.		1.8±0.3	-0.1±0.4				

^a Volume based on two week collection period.

BYRON

Table 1. Airborne Particulates and Iodine Cartridges
Collection: Airborne Particulates: Continuous; weekly exchange
Iodine Cartridges: Continuous, biweekly exchange
ODCM-
Required LLDs: Gross Beta = 0.01, I-131 = 0.07 pCi/m³
Units: 10⁻² pCi/m³

BY-22 Byron Nearsite ESE							
Date Collected	Volume (m ³)	Gross Beta	I-131 ^a	Date Collected	Volume (m ³)	Gross Beta	I-131 ^a
01-05-99	286	2.7 ± 0.4; 0.6	-	07-07-99	327	2.0 ± 0.3; 0.5	-
01-12-99	284	3.3 ± 0.4; 0.7	0.1 ± 0.8; 0.8	07-13-99	242	2.4 ± 0.4; 0.6	0.0 ± 0.5; 0.5
01-19-99	285	2.3 ± 0.3; 0.5	-	07-20-99	285	2.9 ± 0.4; 0.7	-
01-26-99	285	1.8 ± 0.3; 0.5	-0.0 ± 0.5; 0.5	07-27-99	288	1.7 ± 0.4; 0.5	-0.2 ± 0.6; 0.6
02-02-99	285	2.3 ± 0.3; 0.5	-	08-03-99	284	2.0 ± 0.3; 0.5	-
02-09-99	285	2.3 ± 0.3; 0.5	0.3 ± 0.4; 0.4	08-10-99	286	2.5 ± 0.3; 0.5	-0.2 ± 0.4; 0.4
02-16-99	283	2.0 ± 0.3; 0.5	-	08-17-99	285	2.9 ± 0.4; 0.6	-
02-22-99	253	1.6 ± 0.3; 0.5	0.0 ± 0.6; 0.6	08-24-99	276	2.5 ± 0.3; 0.6	0.2 ± 0.4; 0.4
03-02-99	314	2.1 ± 0.3; 0.5	-	08-31-99	291	3.8 ± 0.4; 0.8	-
03-10-99	331	1.5 ± 0.3; 0.4	-0.1 ± 0.5; 0.5	09-07-99	280	3.7 ± 0.4; 0.8	0.6 ± 0.6; 0.6
03-17-99	280	1.8 ± 0.3; 0.5	-	09-14-99	284	2.2 ± 0.3; 0.5	-
03-23-99	248	1.9 ± 0.4; 0.5	0.4 ± 0.6; 0.6	09-21-99	280	2.0 ± 0.3; 0.5	-0.2 ± 0.8; 0.8
03-30-99	282	1.8 ± 0.4; 0.5	-	09-29-99	326	2.4 ± 0.3; 0.6	-
01-04-00	287	3.1 ± 0.4; 0.7	-	3rd Qtr. Mean±s.d.		2.5±0.6	0.0±0.3
1st Qtr. Mean±s.d.		2.2±0.5	0.1±0.2	10-05-99	242	1.7 ± 0.4; 0.5	-0.3 ± 0.5; 0.5
04-06-99	286	1.8 ± 0.3; 0.5	0.1 ± 1.4; 1.4	10-12-99	289	4.2 ± 0.4; 0.9	-
04-13-99	283	2.0 ± 0.3; 0.5	-	10-19-99	284	2.4 ± 0.4; 0.6	0.1 ± 0.9; 0.9
04-20-99	285	1.6 ± 0.3; 0.4	0.1 ± 0.9; 0.9	10-26-99	281	1.9 ± 0.4; 0.5	-
04-27-99	291	1.8 ± 0.3; 0.5	-	11-02-99	291	4.1 ± 0.4; 0.9	0.1 ± 0.5; 0.5
05-04-99	277	1.9 ± 0.4; 0.5	0.7 ± 1.0; 1.0	11-09-99	283	3.2 ± 0.4; 0.7	-
05-11-99	284	1.2 ± 0.3; 0.4	-	11-16-99	286	4.4 ± 0.4; 0.9	-0.1 ± 0.7; 0.7
05-18-99	288	1.9 ± 0.3; 0.5	-0.4 ± 0.5; 0.5	11-23-99	283	3.9 ± 0.5; 0.8	-
05-25-99	281	1.7 ± 0.3; 0.4	-	11-29-99	247	3.3 ± 0.4; 0.7	0.1 ± 0.8; 0.8
06-01-99	287	2.5 ± 0.4; 0.6	-0.3 ± 0.6; 0.6	12-07-99	323	2.9 ± 0.3; 0.6	-
06-08-99	285	1.5 ± 0.3; 0.4	-	12-14-99	287	3.2 ± 0.4; 0.7	0.1 ± 0.4; 0.4
06-15-99	284	1.5 ± 0.3; 0.4	-0.1 ± 0.5; 0.5	12-21-99	286	3.6 ± 0.4; 0.7	-
06-22-99	285	1.7 ± 0.3; 0.5	-	12-28-99	284	3.7 ± 0.4; 0.8	-0.3 ± 0.5; 0.5
06-29-99	285	2.9 ± 0.4; 0.6	-0.1 ± 0.6; 0.6	4th Qtr. Mean±s.d.		3.3±0.9	-0.0±0.2
2nd Qtr. Mean±s.d.		1.9±0.4	-0.0±0.4				

^a Volume based on two week collection period.

BYRON

Table 1. Airborne Particulates and Iodine Cartridges
Collection: Airborne Particulates: Continuous; weekly exchange
Iodine Cartridges: Continuous, biweekly exchange
ODCM-
Required LLDs: Gross Beta = 0.01, I-131 = 0.07 pCi/m³
Units: 10⁻² pCi/m³

BY-23 Byron Nearsite S							
Date Collected	Volume (m ³)	Gross Beta	I-131 ^a	Date Collected	Volume (m ³)	Gross Beta	I-131 ^a
01-05-99	286	2.6 ± 0.4; 0.6	-	07-07-99	327	1.9 ± 0.3; 0.4	-
01-12-99	284	4.4 ± 0.4; 0.9	0.1 ± 0.7; 0.7	07-13-99	242	2.4 ± 0.4; 0.6	0.2 ± 0.5; 0.5
01-19-99	284	2.4 ± 0.3; 0.6	-	07-20-99	285	3.0 ± 0.4; 0.7	-
01-26-99	285	1.5 ± 0.3; 0.4	0.2 ± 0.5; 0.5	07-27-99	288	1.7 ± 0.4; 0.5	-0.1 ± 0.5; 0.5
02-02-99	285	1.9 ± 0.3; 0.5	-	08-03-99	284	1.9 ± 0.3; 0.5	-
02-09-99	285	2.2 ± 0.3; 0.5	-0.2 ± 0.6; 0.6	08-10-99	286	2.2 ± 0.3; 0.5	-0.3 ± 0.5; 0.5
02-16-99	283	2.2 ± 0.3; 0.5	-	08-17-99	285	2.5 ± 0.3; 0.6	-
02-22-99	253	1.3 ± 0.3; 0.4	0.4 ± 0.7; 0.7	08-24-99	286	2.6 ± 0.3; 0.6	-0.2 ± 0.5; 0.5
03-02-99	314	1.9 ± 0.3; 0.5	-	08-31-99	290	3.6 ± 0.4; 0.8	-
03-10-99	331	1.7 ± 0.3; 0.4	0.2 ± 0.5; 0.5	09-07-99	280	4.3 ± 0.4; 0.9	0.1 ± 0.6; 0.6
03-17-99	280	1.9 ± 0.3; 0.5	-	09-14-99	285	2.8 ± 0.4; 0.6	-
03-23-99	248	2.0 ± 0.4; 0.5	0.2 ± 0.6; 0.6	09-21-99	283	2.2 ± 0.3; 0.5	-0.7 ± 0.7; 0.7
03-30-99	282	1.6 ± 0.3; 0.4	-	09-29-99	326	2.2 ± 0.3; 0.5	-
01-04-00	288	3.0 ± 0.4; 0.7	-	3rd Qtr. Mean±s.d.		2.6±0.7	-0.2±0.3
1st Qtr. Mean±s.d.		2.2±0.8	0.2±0.2	10-05-99	242	1.7 ± 0.4; 0.5	0.0 ± 0.5; 0.5
04-06-99	286	1.7 ± 0.3; 0.4	0.4 ± 1.1; 1.1	10-12-99	289	3.4 ± 0.4; 0.7	-
04-13-99	283	1.8 ± 0.3; 0.5	-	10-19-99	284	2.5 ± 0.4; 0.6	0.2 ± 0.8; 0.8
04-20-99	285	1.6 ± 0.3; 0.4	-0.3 ± 0.8; 0.8	10-26-99	281	2.0 ± 0.4; 0.5	-
04-27-99	291	1.8 ± 0.3; 0.5	-	11-02-99	291	4.6 ± 0.4; 0.9	-0.2 ± 0.5; 0.5
05-04-99	278	1.9 ± 0.4; 0.5	-0.4 ± 1.2; 1.2	11-09-99	283	3.1 ± 0.4; 0.7	-
05-11-99	284	1.3 ± 0.3; 0.4	-	11-16-99	278 ^b	4.6 ± 0.5; 1.0	-0.6 ± 0.8; 0.8
05-18-99	288	1.8 ± 0.3; 0.4	0.1 ± 0.6; 0.6	11-23-99	283	4.0 ± 0.5; 0.9	-
05-25-99	281	1.6 ± 0.3; 0.4	-	11-29-99	247	3.0 ± 0.4; 0.7	0.7 ± 0.9; 0.9
06-01-99	287	1.9 ± 0.3; 0.5	0.2 ± 0.7; 0.7	12-07-99	323	2.9 ± 0.3; 0.6	-
06-08-99	285	1.6 ± 0.3; 0.4	-	12-14-99	287	2.9 ± 0.4; 0.7	-0.1 ± 0.4; 0.4
06-15-99	284	1.5 ± 0.3; 0.4	-0.2 ± 1.0; 1.0	12-21-99	286	3.4 ± 0.4; 0.7	-
06-22-99	285	1.7 ± 0.3; 0.5	-	12-28-99	284	3.8 ± 0.4; 0.8	-0.5 ± 0.4; 0.4
06-29-99	285	2.7 ± 0.3; 0.6	-0.3 ± 0.8; 0.8	4th Qtr. Mean±s.d.		3.2±0.9	-0.1±0.5
2nd Qtr. Mean±s.d.		1.7±0.3	-0.1±0.3				

^a Volume based on two week collection period.

^b Volume low; 5-hour difference in meter reading due to pump removal for annual maintenance.

BYRON

Table 1. Airborne Particulates and Iodine Cartridges
Collection: Airborne Particulates: Continuous; weekly exchange
Iodine Cartridges: Continuous, biweekly exchange
ODCM-
Required LLDs: Gross Beta = 0.01, I-131 = 0.07 pCi/m³
Units: 10⁻² pCi/m³

BY-24 Byron Nearsite SW							
Date Collected	Volume (m ³)	Gross Beta	I-131 ^a	Date Collected	Volume (m ³)	Gross Beta	I-131 ^a
01-05-99	286	2.6 ± 0.4; 0.6	-	07-07-99	327	2.2 ± 0.3; 0.5	-
01-12-99	285	3.9 ± 0.4; 0.8	-0.3 ± 0.6; 0.6	07-13-99	242	2.5 ± 0.4; 0.6	0.4 ± 0.6; 0.6
01-19-99	285	2.7 ± 0.4; 0.6	-	07-20-99	285	2.9 ± 0.4; 0.7	-
01-26-99	285	1.8 ± 0.3; 0.5	-0.3 ± 0.5; 0.5	07-27-99	288	1.6 ± 0.4; 0.5	-0.1 ± 0.6; 0.6
02-02-99	285	2.4 ± 0.3; 0.6	-	08-03-99	284	2.2 ± 0.4; 0.5	-
02-09-99	290	2.3 ± 0.3; 0.5	-0.5 ± 0.5; 0.5	08-10-99	286	2.3 ± 0.3; 0.5	-0.0 ± 0.5; 0.5
02-16-99	283	2.6 ± 0.3; 0.6	-	08-17-99	285	2.5 ± 0.3; 0.6	-
02-22-99	254	1.3 ± 0.3; 0.4	-0.0 ± 0.6; 0.6	08-24-99	286	2.7 ± 0.3; 0.6	0.1 ± 0.4; 0.4
03-02-99	314	2.0 ± 0.3; 0.5	-	08-31-99	290	4.3 ± 0.4; 0.9	-
03-10-99	332	1.7 ± 0.3; 0.4	-0.1 ± 0.6; 0.6	09-07-99	280	4.2 ± 0.4; 0.9	-0.1 ± 0.6; 0.6
03-17-99	280	2.1 ± 0.3; 0.5	-	09-14-99	285	2.9 ± 0.4; 0.6	-
03-23-99	248	1.7 ± 0.4; 0.5	0.0 ± 0.7; 0.7	09-21-99	283	2.8 ± 0.4; 0.6	-0.1 ± 0.7; 0.7
03-30-99	282	1.5 ± 0.3; 0.4	-	09-29-99	326	2.3 ± 0.3; 0.5	-
01-04-00	288	3.0 ± 0.4; 0.6	-	3rd Qtr. Mean±s.d.		2.7±0.8	0.0±0.2
1st Qtr. Mean±s.d.		2.3±0.7	-0.2±0.2	10-05-99	242	1.4 ± 0.4; 0.4	0.1 ± 0.6; 0.6
04-06-99	286	1.9 ± 0.3; 0.5	0.3 ± 1.5; 1.5	10-12-99	289	3.5 ± 0.4; 0.7	-
04-13-99	283	1.6 ± 0.3; 0.4	-	10-19-99	284	2.0 ± 0.4; 0.5	-1.2 ± 0.9; 0.9
04-20-99	285	1.6 ± 0.3; 0.4	0.3 ± 0.3; 0.4	10-26-99	281	1.9 ± 0.4; 0.5	-
04-27-99	291	1.8 ± 0.3; 0.4	-	11-02-99	292	4.7 ± 0.4; 1.0	0.0 ± 0.5; 0.5
05-04-99	278	1.7 ± 0.3; 0.5	0.0 ± 0.8; 0.8	11-09-99	283	3.4 ± 0.4; 0.7	-
05-11-99	284	1.4 ± 0.3; 0.4	-	11-16-99	287	5.0 ± 0.5; 1.0	-0.4 ± 0.9; 0.9
05-18-99	288	1.9 ± 0.3; 0.5	-0.1 ± 0.6; 0.6	11-23-99	283	4.3 ± 0.5; 0.9	-
05-25-99	281	2.1 ± 0.3; 0.5	-	11-29-99	247	3.7 ± 0.4; 0.8	-0.2 ± 1.0; 1.0
06-01-99	287	2.1 ± 0.3; 0.5	-0.0 ± 0.5; 0.5	12-07-99	323	3.3 ± 0.3; 0.7	-
06-08-99	285	1.5 ± 0.3; 0.4	-	12-14-99	283	3.1 ± 0.4; 0.7	0.2 ± 0.4; 0.4
06-15-99	284	1.4 ± 0.3; 0.4	0.2 ± 0.5; 0.5	12-21-99	281	3.5 ± 0.4; 0.7	-
06-22-99	285	1.8 ± 0.4; 0.5	-	12-28-99	284	4.0 ± 0.4; 0.9	-0.8 ± 0.4; 0.5
06-29-99	286	2.8 ± 0.3; 0.6	0.1 ± 0.6; 0.6	4th Qtr. Mean±s.d.		3.4±1.1	-0.3±0.5
2nd Qtr. Mean±s.d.		1.8±0.4	0.1±0.2				

^a Volume based on two week collection period.

BYRON

Table 2. Airborne Particulates

Collection: Quarterly composites of weekly collections

ODCM-

Required LLDs: Cs-134 = 0.01, Cs-137 = 0.01 pCi/m³

Other LLDs: Mn-54 = 0.01; Fe-59 = 0.015; Co-58, Co-60 = 0.01; Zn-65 = 0.04; Zr/Nb-95 = 0.01;
Ba/La-140 = 0.025; pCi/m³

Units: 10⁻⁴ pCi/m³

Sample Description and Concentration

BY-08 (C) Leaf River

1999 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BYAP-2576	BYAP-5152	BYAP-8249	BYAP-10178
Volume	3,696	3,709	3,752	3,673
Mn-54	-1.7 ± 4.9; 4.9	-0.6 ± 8.1; 8.1	-2.3 ± 4.9; 4.9	-0.8 ± 4.1; 4.1
Fe-59	15.7 ± 29.8; 29.9	6.3 ± 4.9; 5.0	2.8 ± 6.7; 6.7	-4.7 ± 6.7; 6.8
Co-58	-0.1 ± 7.4; 7.4	-4.1 ± 9.7; 9.7	-3.1 ± 7.0; 7.0	-2.5 ± 4.1; 4.1
Co-60	-4.8 ± 9.0; 9.0	-0.1 ± 0.3; 0.3	4.1 ± 3.1; 3.2	4.3 ± 5.4; 5.4
Zn-65	-1.0 ± 13.7; 13.7	-20.1 ± 20.9; 21.2	-3.4 ± 11.9; 11.9	0.9 ± 9.3; 9.3
Zr/Nb-95	2.2 ± 10.9; 10.9	1.3 ± 10.0; 10.0	-2.9 ± 18.1; 18.1	5.5 ± 3.9; 4.0
Cs-134	1.5 ± 2.1; 2.1	1.3 ± 3.6; 3.6	-1.0 ± 5.6; 5.6	2.4 ± 4.4; 4.4
Cs-137	-4.0 ± 5.5; 5.5	5.3 ± 6.4; 6.5	-1.8 ± 5.2; 5.2	0.7 ± 4.1; 4.1
Ba/La-140	-22.6 ± 153.0; 153.1	-2.2 ± 7.3; 7.3	4.4 ± 5.3; 5.3	-30.9 ± 5.4; 7.7

BY-21 Byron Nearsite N

1999 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BYAP-2577	BYAP-5153	BYAP-8250	BYAP-10179
Volume	3,714	3,709	3,753	3,673
Mn-54	-2.8 ± 10.7; 10.7	7.3 ± 4.9; 5.1	4.8 ± 5.7; 5.8	4.9 ± 2.5; 2.6
Fe-59	-13.3 ± 38.6; 38.7	11.8 ± 39.4; 39.5	1.4 ± 3.4; 3.4	3.5 ± 4.7; 4.7
Co-58	-2.1 ± 13.5; 13.5	-2.8 ± 4.4; 4.4	-3.6 ± 6.8; 6.8	-0.6 ± 2.6; 2.6
Co-60	-8.3 ± 77.9; 77.9	0.9 ± 1.9; 1.9	-3.8 ± 23.5; 23.5	0.6 ± 4.0; 4.0
Zn-65	-5.2 ± 27.6; 27.6	-10.7 ± 10.3; 10.5	1.7 ± 12.4; 12.4	1.1 ± 5.0; 5.0
Zr/Nb-95	-7.4 ± 17.5; 17.5	1.6 ± 6.5; 6.5	-5.4 ± 21.8; 21.8	-3.0 ± 2.8; 2.8
Cs-134	-4.3 ± 18.2; 18.2	-2.2 ± 3.7; 3.7	0.1 ± 0.3; 0.3	-1.9 ± 3.0; 3.0
Cs-137	1.7 ± 8.4; 8.4	-1.1 ± 4.8; 4.8	-0.9 ± 5.9; 5.9	2.2 ± 3.0; 3.0
Ba/La-140	22.0 ± 22.0; 22.3	15.1 ± 345.0; 345.0	-9.6 ± 15.9; 16.0	-18.2 ± 4.0; 5.1

BYRON

Table 2. Airborne Particulates

Collection: Quarterly composites of weekly collections

ODCM-

Required LLDs: Cs-134 = 0.01, Cs-137 = 0.01 pCi/m³

Other LLDs: Mn-54 = 0.01; Fe-59 = 0.015; Co-58, Co-60 = 0.01; Zn-65 = 0.04; Zr/Nb-95 = 0.01;
Ba/La-140 = 0.025; pCi/m³

Units: 10⁻⁴ pCi/m³

Sample Description and Concentration

BY-22 Byron Nearsite ESE

1999 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BYAP-2578	BYAP-5154	BYAP-8251	BYAP-10180
Volume	3,709	3,709	3,741	3,673
Mn-54	-1.9 ± 6.5; 6.5	-4.4 ± 8.0; 8.1	-1.4 ± 3.8; 3.8	-2.3 ± 3.1; 3.1
Fe-59	-7.6 ± 62.4; 62.4	1.9 ± 21.0; 21.0	1.6 ± 13.6; 13.6	5.9 ± 6.0; 6.1
Co-58	5.6 ± 6.4; 6.4	-4.2 ± 8.0; 8.0	-1.3 ± 5.6; 5.6	-0.8 ± 3.0; 3.0
Co-60	-2.9 ± 7.8; 7.9	3.2 ± 14.5; 14.5	1.9 ± 35.1; 35.1	2.3 ± 5.0; 5.0
Zn-65	7.2 ± 10.3; 10.4	-12.0 ± 17.7; 17.8	-3.1 ± 7.8; 7.8	-1.1 ± 7.0; 7.0
Zr/Nb-95	-4.8 ± 12.1; 12.1	-2.9 ± 11.8; 11.8	-3.6 ± 7.4; 7.4	1.1 ± 3.0; 3.0
Cs-134	2.4 ± 10.0; 10.0	6.4 ± 10.0; 10.1	0.5 ± 0.4; 0.4	-0.4 ± 3.8; 3.8
Cs-137	-0.9 ± 5.4; 5.4	2.0 ± 6.8; 6.8	2.4 ± 3.4; 3.5	1.9 ± 3.1; 3.1
Ba/La-140	7.9 ± 102.0; 102.0	5.0 ± 3.7; 3.8	5.4 ± 6.1; 6.2	-0.9 ± 4.1; 4.1

BY-23 Byron Nearsite S

1999 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BYAP-2579	BYAP-5155	BYAP-8252	BYAP-10181
Volume	3,709	3,710	3,754	3,665
Mn-54	6.1 ± 7.2; 7.3	0.6 ± 4.9; 4.9	-0.2 ± 4.2; 4.2	-2.3 ± 4.2; 4.2
Fe-59	-9.6 ± 25.9; 26.0	13.8 ± 44.8; 44.9	-3.8 ± 33.5; 33.5	4.5 ± 7.7; 7.7
Co-58	-3.0 ± 9.3; 9.3	-4.2 ± 6.3; 6.4	2.0 ± 6.0; 6.0	-6.2 ± 4.2; 4.3
Co-60	-1.6 ± 3.0; 3.0	1.5 ± 2.5; 2.5	0.1 ± 0.2; 0.2	1.0 ± 4.6; 4.6
Zn-65	-11.4 ± 16.9; 17.0	-2.3 ± 12.2; 12.2	-30.6 ± 12.8; 13.9	-4.9 ± 12.2; 12.3
Zr/Nb-95	-2.2 ± 9.7; 9.7	0.9 ± 7.4; 7.4	-7.0 ± 9.5; 9.5	-0.9 ± 4.4; 4.4
Cs-134	-1.4 ± 5.2; 5.2	2.3 ± 4.3; 4.3	3.7 ± 1.3; 1.5	3.2 ± 4.6; 4.6
Cs-137	-2.5 ± 6.0; 6.0	0.5 ± 4.4; 4.4	0.3 ± 4.4; 4.4	2.8 ± 4.4; 4.4
Ba/La-140	-37.1 ± 406.0; 406.1	10.4 ± 23.5; 23.6	2.3 ± 5.4; 5.4	-23.2 ± 6.7; 7.9

BYRON

Table 2. Airborne Particulates

Collection: Quarterly composites of weekly collections

ODCM-

Required LLDs: Cs-134 = 0.01, Cs-137 = 0.01 pCi/m³

Other LLDs: Mn-54 = 0.01; Fe-59 = 0.015; Co-58, Co-60 = 0.01; Zn-65 = 0.04; Zr/Nb-95 = 0.01;
Ba/La-140 = 0.025; pCi/m³

Units: 10⁻⁴ pCi/m³

Sample Description and Concentration

BY-24 Byron Nearsite SW

1999 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BYAP-2580	BYAP-5156	BYAP-8253	BYAP-10182
Volume	3,715	3,710	3,753	3,664
Mn-54	1.1 ± 4.6; 4.6	-1.7 ± 6.8; 6.8	-2.4 ± 5.8; 5.8	-0.6 ± 3.8; 3.8
Fe-59	4.1 ± 83.3; 83.3	-1.3 ± 3.0; 3.0	5.1 ± 8.2; 8.2	-1.0 ± 7.1; 7.1
Co-58	-3.7 ± 5.8; 5.9	-4.4 ± 7.0; 7.0	0.5 ± 6.5; 6.5	0.4 ± 3.5; 3.5
Co-60	0.3 ± 0.5; 0.5	-0.1 ± 0.2; 0.2	-3.2 ± 8.5; 8.5	2.8 ± 4.3; 4.3
Zn-65	-1.5 ± 11.0; 11.0	-12.7 ± 15.8; 16.0	-14.6 ± 13.1; 13.4	0.9 ± 7.7; 7.7
Zr/Nb-95	-6.4 ± 10.1; 10.2	0.8 ± 9.3; 9.3	-8.7 ± 9.5; 9.7	-8.1 ± 7.7; 7.9
Cs-134	-0.8 ± 0.3; 0.4	1.6 ± 6.2; 6.2	2.9 ± 1.2; 1.3	-0.5 ± 3.7; 3.7
Cs-137	-4.4 ± 4.2; 4.3	6.2 ± 6.9; 6.9	0.5 ± 4.6; 4.6	0.9 ± 3.6; 3.6
Ba/La-140	19.2 ± 280.0; 280.0	4.1 ± 50.7; 50.7	11.6 ± 25.6; 25.7	-6.6 ± 6.2; 6.3

BYRON

Table 3. Milk

Collection:	Biweekly (May - October) Monthly (November - April)
ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-20 K. Reeverts Dairy Farm

Date Collected	01-05-99	02-02-99	03-02-99	04-06-99
Lab Code	BYMI-23	BYMI-602	BYMI-1301	BYMI-2122
I-131	0.23 ± 0.25; 0.25	-0.21 ± 0.18; 0.18	-0.14 ± 0.19; 0.20	-0.11 ± 0.19; 0.19
Mn-54	-3.1 ± 1.9; 2.0	-0.8 ± 2.4; 2.4	0.5 ± 2.2; 2.2	0.5 ± 2.5; 2.5
Fe-59	4.1 ± 8.1; 8.1	-6.6 ± 7.7; 7.8	0.9 ± 2.0; 2.0	0.2 ± 0.2; 0.2
Co-58	-0.9 ± 1.9; 1.9	-0.5 ± 2.1; 2.1	-0.1 ± 1.9; 1.9	-0.2 ± 2.3; 2.3
Co-60	0.9 ± 2.7; 2.7	0.5 ± 0.3; 0.3	0.1 ± 1.6; 1.6	-1.1 ± 2.2; 2.2
Zn-65	-4.1 ± 5.2; 5.2	-2.4 ± 5.7; 5.7	-4.0 ± 4.9; 4.9	-1.8 ± 6.4; 6.4
Zr/Nb-95	-0.5 ± 2.1; 2.1	1.3 ± 2.8; 2.8	-1.4 ± 5.6; 5.6	-0.9 ± 2.4; 2.4
Cs-134	0.6 ± 0.4; 0.4	-1.0 ± 6.5; 6.5	-0.3 ± 0.3; 0.3	1.8 ± 1.9; 1.9
Cs-137	1.8 ± 2.0; 2.0	2.7 ± 2.9; 2.9	1.8 ± 1.9; 1.9	-0.9 ± 2.5; 2.5
Ba/La-140	-0.6 ± 2.7; 2.7	-2.6 ± 5.0; 5.0	-1.9 ± 4.4; 4.4	-1.7 ± 1.7; 1.7
Date Collected	05-04-99	05-18-99	06-01-99	06-15-99
Lab Code	BYMI-2997	BYMI-3397	BYMI-3765	BYMI-4208
I-131	0.01 ± 0.18; 0.18	-0.06 ± 0.17; 0.17	-0.09 ± 0.14; 0.14	0.00 ± 0.14; 0.14
Mn-54	-2.3 ± 3.7; 3.7	-0.4 ± 2.7; 2.7	-0.1 ± 2.1; 2.1	0.1 ± 2.0; 2.0
Fe-59	-1.7 ± 4.1; 4.1	-1.7 ± 3.0; 3.0	0.9 ± 8.1; 8.1	0.5 ± 3.1; 3.1
Co-58	-1.8 ± 4.3; 4.3	1.5 ± 2.6; 2.6	-0.5 ± 1.9; 1.9	-1.3 ± 2.1; 2.1
Co-60	0.9 ± 11.9; 11.9	-1.1 ± 2.7; 2.7	-0.8 ± 3.6; 3.6	1.9 ± 7.8; 7.8
Zn-65	-6.2 ± 9.0; 9.0	-3.4 ± 6.6; 6.6	-8.3 ± 5.3; 5.4	-0.8 ± 4.8; 4.8
Zr/Nb-95	-0.8 ± 3.9; 3.9	1.2 ± 3.0; 3.0	-0.3 ± 2.1; 2.1	0.6 ± 2.2; 2.2
Cs-134	-0.3 ± 0.3; 0.3	1.4 ± 1.6; 1.7	2.2 ± 2.4; 2.5	-1.0 ± 1.5; 1.5
Cs-137	-0.5 ± 3.7; 3.7	1.5 ± 2.4; 2.4	1.8 ± 2.0; 2.0	-1.2 ± 2.3; 2.3
Ba/La-140	0.4 ± 14.1; 14.1	0.4 ± 0.9; 0.9	0.2 ± 0.9; 0.9	0.6 ± 5.2; 5.2

BYRON

Table 3.	Milk
Collection:	Biweekly (May - October) Monthly (November - April)
ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-20 K. Reeverts Dairy Farm

Date Collected	06-29-99	07-13-99	07-27-99	08-10-99
Lab Code	BYMI-4547	BYMI-5073	BYMI-5520,1	BYMI-5902
I-131	-0.07 ± 0.14; 0.14	-0.10 ± 0.14; 0.14	0.10 ± 0.20; 0.20	0.02 ± 0.16; 0.16
Mn-54	-0.3 ± 2.8; 2.8	-1.9 ± 2.7; 2.7	-0.8 ± 1.6; 1.6	0.6 ± 1.9; 1.9
Fe-59	1.2 ± 2.7; 2.7	2.8 ± 4.1; 4.1	-0.4 ± 4.1; 4.1	-1.8 ± 13.5; 13.5
Co-58	-0.2 ± 2.4; 2.4	1.6 ± 2.7; 2.7	0.8 ± 1.6; 1.6	0.1 ± 1.9; 1.9
Co-60	1.2 ± 1.6; 1.6	1.0 ± 2.2; 2.2	-1.8 ± 2.2; 2.2	1.0 ± 1.0; 1.0
Zn-65	-5.6 ± 6.6; 6.6	-5.3 ± 6.4; 6.4	-5.1 ± 4.7; 4.8	2.0 ± 4.5; 4.5
Zr/Nb-95	-0.3 ± 3.1; 3.1	-0.4 ± 2.7; 2.7	1.4 ± 1.7; 1.7	-0.4 ± 2.0; 2.0
Cs-134	1.3 ± 0.9; 0.9	-0.6 ± 0.4; 0.4	-0.6 ± 1.9; 1.9	1.1 ± 2.2; 2.2
Cs-137	-0.4 ± 2.7; 2.7	-0.4 ± 2.6; 2.6	2.3 ± 1.7; 1.8	-0.4 ± 2.0; 2.0
Ba/La-140	-0.6 ± 14.6; 14.6	0.4 ± 1.3; 1.3	-0.7 ± 12.0; 12.0	-0.2 ± 41.1; 41.1
Date Collected	08-24-99	09-07-99	09-21-99	10-05-99
Lab Code	BYMI-6192	BYMI-6615	BYMI-6944	BYMI-7413
I-131	-0.00 ± 0.15; 0.15	-0.01 ± 0.17; 0.17	0.19 ± 0.20; 0.20	-0.09 ± 0.19; 0.19
Mn-54	1.3 ± 2.4; 2.4	3.1 ± 3.3; 3.3	-0.3 ± 2.2; 2.2	0.4 ± 2.6; 2.6
Fe-59	2.3 ± 3.6; 3.6	3.6 ± 7.9; 7.9	-1.4 ± 14.2; 14.2	-4.5 ± 7.4; 7.4
Co-58	0.7 ± 1.9; 1.9	-1.9 ± 3.3; 3.4	-0.4 ± 2.5; 2.5	0.5 ± 2.3; 2.3
Co-60	-0.7 ± 3.6; 3.6	-0.9 ± 2.3; 2.3	1.6 ± 67.8; 67.8	0.4 ± 9.0; 9.0
Zn-65	-5.6 ± 6.7; 6.7	-6.5 ± 8.4; 8.5	-8.3 ± 6.7; 6.7	0.4 ± 6.0; 6.0
Zr/Nb-95	-1.3 ± 2.5; 2.5	-0.5 ± 3.1; 3.1	-1.1 ± 2.9; 2.9	0.2 ± 2.7; 2.7
Cs-134	-0.4 ± 0.5; 0.5	-2.9 ± 4.5; 4.5	-0.6 ± 0.4; 0.4	1.5 ± 3.6; 3.6
Cs-137	1.0 ± 2.4; 2.4	-0.1 ± 3.3; 3.3	2.7 ± 2.7; 2.7	1.8 ± 2.4; 2.5
Ba/La-140	0.3 ± 1.4; 1.4	-3.6 ± 8.1; 8.1	2.7 ± 10.4; 10.4	0.5 ± 5.3; 5.3

BYRON

Table 3.	Milk	
	Collection:	Biweekly (May - October) Monthly (November - April)
	ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
	Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
	Units:	pCi/L

Sample Description and Concentration

BY-20 K. Reeverts Dairy Farm

Date Collected	10-20-99	11-02-99	12-07-99
Lab Code	BYMI-8184	BYMI-8627	BYMI-9395
I-131	0.03 ± 0.14; 0.14	-0.05 ± 0.18; 0.18	0.10 ± 0.17; 0.17
Mn-54	2.4 ± 2.4; 2.4	-1.2 ± 2.3; 2.3	0.8 ± 2.5; 2.5
Fe-59	2.1 ± 6.0; 6.0	0.6 ± 9.8; 9.8	4.7 ± 16.1; 16.1
Co-58	-2.0 ± 2.7; 2.7	-1.6 ± 2.3; 2.3	-1.1 ± 2.6; 2.6
Co-60	-1.1 ± 15.9; 15.9	1.2 ± 4.3; 4.3	-1.1 ± 2.1; 2.1
Zn-65	-2.7 ± 5.9; 5.9	-1.0 ± 6.7; 6.7	-3.6 ± 6.7; 6.7
Zr/Nb-95	-0.6 ± 2.6; 2.6	-0.7 ± 2.8; 2.8	-2.5 ± 2.8; 2.8
Cs-134	0.1 ± 0.1; 0.1	-2.0 ± 3.9; 3.9	-1.1 ± 1.1; 1.1
Cs-137	3.0 ± 2.5; 2.5	2.2 ± 2.1; 2.1	2.8 ± 2.9; 2.9
Ba/La-140	0.3 ± 1.0; 1.0	-0.1 ± 7.4; 7.4	-3.2 ± 23.7; 23.7

BYRON

Table 3 . Milk	
Collection:	Biweekly (May - October) Monthly (November - April)
ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-26 (C) Glenn Hazzard's Dairy Farm

Date Collected	01-05-99	02-02-99	03-02-99	04-06-99
Lab Code	BYMI-24	BYMI-603	BYMI-1302	BYMI-2123
I-131	0.16 ± 0.18; 0.19	0.02 ± 0.18; 0.18	0.01 ± 0.22; 0.22	-0.04 ± 0.18; 0.18
Mn-54	-1.4 ± 1.8; 1.8	-0.3 ± 2.2; 2.2	-0.4 ± 2.4; 2.4	-1.1 ± 4.3; 4.3
Fe-59	-0.4 ± 0.8; 0.8	-0.2 ± 0.4; 0.4	4.9 ± 33.6; 33.6	10.0 ± 13.8; 13.9
Co-58	-1.0 ± 1.7; 1.7	1.3 ± 2.1; 2.1	0.1 ± 2.6; 2.6	-0.2 ± 4.2; 4.2
Co-60	0.1 ± 0.5; 0.5	0.9 ± 5.9; 5.9	-1.4 ± 6.3; 6.3	-1.9 ± 4.0; 4.0
Zn-65	-1.6 ± 3.9; 3.9	-2.9 ± 4.6; 4.6	0.8 ± 5.3; 5.3	-6.0 ± 10.4; 10.4
Zr/Nb-95	-0.5 ± 1.6; 1.6	-1.3 ± 2.3; 2.3	1.7 ± 2.6; 2.6	-2.3 ± 4.8; 4.8
Cs-134	-0.6 ± 0.4; 0.4	-0.5 ± 0.9; 0.9	-1.2 ± 7.1; 7.1	1.4 ± 1.0; 1.0
Cs-137	-0.2 ± 1.8; 1.8	2.0 ± 2.3; 2.3	0.8 ± 2.6; 2.6	0.3 ± 4.2; 4.2
Ba/La-140	-0.4 ± 1.7; 1.7	0.3 ± 7.1; 7.1	0.3 ± 0.3; 0.3	2.0 ± 5.2; 5.2
Date Collected	05-04-99	05-18-99	06-01-99	06-15-99
Lab Code	BYMI-2998	BYMI-3398	BYMI-3766	BYMI-4209
I-131	-0.13 ± 0.17; 0.17	0.05 ± 0.19; 0.19	0.17 ± 0.19; 0.19	0.03 ± 0.14; 0.14
Mn-54	-1.2 ± 3.6; 3.6	-0.9 ± 3.2; 3.2	-0.5 ± 1.8; 1.8	-0.4 ± 3.8; 3.8
Fe-59	4.1 ± 14.3; 14.3	1.5 ± 3.1; 3.1	0.9 ± 1.0; 1.0	-5.0 ± 19.3; 19.3
Co-58	-0.9 ± 3.5; 3.5	-1.5 ± 2.8; 2.8	0.5 ± 1.2; 1.2	0.3 ± 3.4; 3.4
Co-60	-0.6 ± 1.5; 1.5	1.0 ± 3.2; 3.2	0.2 ± 0.4; 0.4	-2.7 ± 5.0; 5.0
Zn-65	-0.5 ± 8.4; 8.4	2.9 ± 8.2; 8.2	-0.4 ± 4.2; 4.2	-1.4 ± 8.8; 8.8
Zr/Nb-95	-0.4 ± 4.1; 4.1	0.8 ± 3.7; 3.7	0.5 ± 1.1; 1.1	1.4 ± 3.9; 3.9
Cs-134	3.1 ± 4.2; 4.3	-1.1 ± 0.8; 0.9	0.3 ± 0.2; 0.2	-4.9 ± 17.5; 17.5
Cs-137	1.0 ± 3.9; 3.9	-1.3 ± 3.2; 3.2	1.5 ± 1.8; 1.9	-2.7 ± 3.6; 3.6
Ba/La-140	2.2 ± 13.9; 13.9	-1.8 ± 4.5; 4.5	-0.3 ± 0.4; 0.4	0.8 ± 3.0; 3.0

BYRON

Table 3. Milk

Collection:	Biweekly (May - October) Monthly (November - April)
ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-26 (C) Glenn Hazzard's Dairy Farm

Date Collected	06-29-99	07-13-99	07-27-99	08-10-99
Lab Code	BYMI-4548	BYMI-5074	BYMI-5522	BYMI-5903
I-131	-0.03 ± 0.14; 0.14	0.07 ± 0.21; 0.21	-0.36 ± 0.29; 0.29	-0.02 ± 0.19; 0.19
Mn-54	-0.2 ± 2.3; 2.3	-2.9 ± 5.7; 5.7	0.8 ± 2.9; 2.9	-0.3 ± 2.4; 2.4
Fe-59	-1.2 ± 4.1; 4.1	0.9 ± 19.6; 19.6	-1.0 ± 10.5; 10.5	2.3 ± 2.2; 2.2
Co-58	-1.0 ± 2.5; 2.5	-2.3 ± 5.6; 5.6	-0.2 ± 3.0; 3.0	-0.1 ± 2.0; 2.0
Co-60	-0.1 ± 0.1; 0.1	0.5 ± 1.2; 1.2	1.7 ± 55.4; 55.4	-0.9 ± 1.3; 1.3
Zn-65	-1.9 ± 5.3; 5.3	8.6 ± 13.2; 13.3	-2.1 ± 7.2; 7.2	-4.6 ± 6.5; 6.5
Zr/Nb-95	0.6 ± 2.2; 2.2	0.5 ± 6.6; 6.6	-1.5 ± 2.8; 2.8	0.1 ± 2.4; 2.4
Cs-134	0.7 ± 1.1; 1.1	-3.0 ± 20.3; 20.3	-2.2 ± 2.8; 2.8	-0.6 ± 0.6; 0.6
Cs-137	2.5 ± 2.3; 2.3	0.4 ± 5.1; 5.1	1.1 ± 2.9; 2.9	1.5 ± 2.4; 2.4
Ba/La-140	-1.2 ± 9.2; 9.2	-8.5 ± 29.2; 29.2	-2.3 ± 3.8; 3.8	0.0 ± 0.1; 0.1
Date Collected	08-24-99	09-07-99	09-21-99	10-05-99
Lab Code	BYMI-6193	BYMI-6616	BYMI-6945	BYMI-7414
I-131	0.09 ± 0.20; 0.20	0.20 ± 0.23; 0.23	-0.06 ± 0.18; 0.18	-0.07 ± 0.20; 0.20
Mn-54	0.8 ± 2.1; 2.1	-0.7 ± 2.7; 2.7	-0.4 ± 3.4; 3.4	1.1 ± 2.1; 2.1
Fe-59	0.2 ± 1.5; 1.5	-0.6 ± 3.8; 3.8	10.9 ± 24.4; 24.4	-0.5 ± 14.6; 14.6
Co-58	0.8 ± 2.1; 2.1	-1.2 ± 2.6; 2.6	1.3 ± 3.7; 3.7	0.1 ± 2.1; 2.1
Co-60	0.1 ± 0.1; 0.1	0.3 ± 0.9; 0.9	2.2 ± 4.0; 4.0	1.1 ± 7.0; 7.0
Zn-65	-2.5 ± 5.0; 5.1	-2.9 ± 7.1; 7.1	-6.2 ± 9.3; 9.4	4.1 ± 5.6; 5.7
Zr/Nb-95	1.2 ± 2.2; 2.2	0.8 ± 3.1; 3.1	-1.0 ± 3.8; 3.8	0.4 ± 2.2; 2.2
Cs-134	-1.0 ± 0.7; 0.7	-0.3 ± 0.4; 0.4	3.5 ± 10.0; 10.0	1.6 ± 8.2; 8.2
Cs-137	0.6 ± 2.1; 2.1	1.8 ± 2.8; 2.8	1.7 ± 3.6; 3.6	0.8 ± 2.2; 2.2
Ba/La-140	-2.8 ± 7.1; 7.1	-0.1 ± 0.3; 0.3	-1.4 ± 6.7; 6.7	1.9 ± 52.1; 52.1

BYRON

Table 3 .	Milk	
	Collection:	Biweekly (May - October) Monthly (November - April)
	ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131= 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
	Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
	Units:	pCi/L

Sample Description and Concentration

BY-26 (C) Glenn Hazzard's Dairy Farm

Date Collected	10-20-99	11-02-99	12-07-99
Lab Code	BYMI-8185	BYMI-8628	BYMI-9396
I-131	0.02 ± 0.15; 0.15	-0.06 ± 0.19; 0.19	-0.04 ± 0.16; 0.16
Mn-54	-0.2 ± 1.5; 1.5	1.7 ± 3.0; 3.0	1.0 ± 2.2; 2.2
Fe-59	3.0 ± 3.5; 3.5	-3.4 ± 16.1; 16.1	-2.1 ± 19.1; 19.1
Co-58	-0.3 ± 1.6; 1.6	0.3 ± 2.9; 2.9	-0.1 ± 2.5; 2.5
Co-60	0.4 ± 1.6; 1.6	-1.1 ± 20.9; 20.9	0.7 ± 5.2; 5.2
Zn-65	-1.1 ± 3.6; 3.6	-9.0 ± 10.1; 10.2	-2.8 ± 5.8; 5.8
Zr/Nb-95	-0.6 ± 1.7; 1.7	-2.9 ± 3.9; 3.9	-1.0 ± 2.7; 2.7
Cs-134	0.1 ± 0.1; 0.1	0.1 ± 0.1; 0.1	1.1 ± 2.7; 2.7
Cs-137	0.5 ± 1.6; 1.6	-1.0 ± 3.3; 3.3	1.9 ± 2.5; 2.5
Ba/La-140	-0.4 ± 0.7; 0.7	-2.0 ± 33.5; 33.5	-1.9 ± 3.5; 3.5

Table 3. Milk

Collection:	Biweekly (May - October) Monthly (November - April)
ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-30 Don Roos Dairy

Date Collected	01-05-99	02-02-99	03-02-99	04-06-99
Lab Code	BYMI-25	BYMI-604	BYMI-1303	BYMI-2124
I-131	0.06 ± 0.18; 0.18	-0.02 ± 0.18; 0.18	-0.10 ± 0.18; 0.18	0.01 ± 0.21; 0.21
Mn-54	0.9 ± 2.5; 2.5	3.3 ± 3.1; 3.1	2.7 ± 4.3; 4.3	0.9 ± 3.2; 3.2
Fe-59	2.1 ± 3.2; 3.2	-7.4 ± 17.9; 17.9	1.4 ± 4.3; 4.3	9.1 ± 9.3; 9.3
Co-58	2.2 ± 2.5; 2.5	-1.1 ± 3.4; 3.4	1.0 ± 3.8; 3.8	1.9 ± 3.1; 3.2
Co-60	1.7 ± 5.8; 5.8	4.3 ± 8.9; 9.0	-3.9 ± 33.2; 33.2	-0.6 ± 1.4; 1.4
Zn-65	-3.8 ± 7.1; 7.1	-4.2 ± 7.6; 7.7	4.5 ± 12.1; 12.1	-6.5 ± 9.0; 9.0
Zr/Nb-95	-2.9 ± 2.7; 2.7	-1.4 ± 3.2; 3.2	0.2 ± 4.8; 4.8	-1.1 ± 3.3; 3.3
Cs-134	0.1 ± 0.3; 0.3	0.9 ± 1.2; 1.2	-2.0 ± 2.4; 2.4	0.8 ± 1.0; 1.0
Cs-137	-0.8 ± 2.8; 2.8	2.3 ± 3.3; 3.3	3.7 ± 4.3; 4.3	0.8 ± 3.4; 3.4
Ba/La-140	-1.5 ± 3.1; 3.1	-1.5 ± 25.7; 25.7	0.4 ± 1.6; 1.6	-0.5 ± 0.9; 0.9
Date Collected	05-04-99	05-18-99	06-01-99	06-15-99
Lab Code	BYMI-2999	BYMI-3399	BYMI-3767	BYMI-4210
I-131	-0.16 ± 0.16; 0.17	0.04 ± 0.16; 0.16	-0.08 ± 0.15; 0.15	-0.02 ± 0.15; 0.15
Mn-54	-0.4 ± 3.9; 3.9	-0.2 ± 2.1; 2.1	-1.5 ± 2.8; 2.8	0.1 ± 2.4; 2.4
Fe-59	4.5 ± 21.6; 21.6	-1.9 ± 4.2; 4.2	-5.0 ± 18.8; 18.8	-0.6 ± 0.4; 0.4
Co-58	-1.1 ± 4.0; 4.0	0.1 ± 2.0; 2.0	1.6 ± 2.3; 2.3	-0.1 ± 2.2; 2.2
Co-60	-0.4 ± 1.6; 1.6	1.1 ± 3.1; 3.1	-1.0 ± 0.9; 0.9	0.3 ± 2.3; 2.3
Zn-65	-7.1 ± 8.1; 8.1	-4.9 ± 4.7; 4.7	-4.5 ± 6.8; 6.8	-2.6 ± 6.2; 6.2
Zr/Nb-95	-0.2 ± 4.3; 4.3	0.7 ± 2.4; 2.4	0.1 ± 2.7; 2.7	0.4 ± 2.7; 2.7
Cs-134	-0.8 ± 1.4; 1.4	0.4 ± 0.4; 0.4	0.3 ± 0.2; 0.2	1.3 ± 3.7; 3.7
Cs-137	1.3 ± 4.0; 4.0	0.3 ± 2.0; 2.0	-0.8 ± 2.7; 2.7	2.0 ± 2.6; 2.6
Ba/La-140	2.7 ± 5.7; 5.7	1.1 ± 20.0; 20.0	-1.7 ± 8.9; 8.9	-3.0 ± 14.8; 14.8

BYRON

Table 3.	Milk	
Collection:	Biweekly (May - October)	
	Monthly (November - April)	
ODCM-	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April),	
Required LLDs:	Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L	
Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L	
Units:	pCi/L	

Sample Description and Concentration

BY-30 Don Roos Dairy

Date Collected	06-29-99	07-13-99	07-27-99	08-10-99
Lab Code	BYMI-4549	BYMI-5075	BYMI-5523	BYMI-5904
I-131	0.14 ± 0.15; 0.15	0.10 ± 0.12; 0.13	-0.12 ± 0.29; 0.29	0.14 ± 0.15; 0.15
Mn-54	0.4 ± 3.5; 3.5	0.3 ± 3.6; 3.6	-0.7 ± 2.1; 2.1	-1.0 ± 4.0; 4.0
Fe-59	1.0 ± 2.5; 2.5	3.3 ± 9.4; 9.4	0.9 ± 3.3; 3.3	2.7 ± 6.3; 6.3
Co-58	-0.9 ± 3.6; 3.6	0.3 ± 3.7; 3.7	-0.7 ± 2.3; 2.3	1.3 ± 3.9; 3.9
Co-60	-0.9 ± 2.3; 2.3	0.5 ± 2.5; 2.5	2.4 ± 3.5; 3.5	2.0 ± 14.9; 14.9
Zn-65	-1.1 ± 8.6; 8.6	3.6 ± 8.6; 8.6	-4.0 ± 4.6; 4.7	3.4 ± 9.2; 9.2
Zr/Nb-95	0.7 ± 4.6; 4.6	1.1 ± 4.3; 4.3	-0.8 ± 2.5; 2.5	-0.4 ± 4.0; 4.0
Cs-134	-3.9 ± 5.0; 5.0	-0.3 ± 4.8; 4.8	0.3 ± 0.6; 0.6	2.6 ± 79.7; 79.7
Cs-137	2.6 ± 3.3; 3.3	1.0 ± 3.0; 3.0	0.3 ± 2.1; 2.1	2.3 ± 3.9; 3.9
Ba/La-140	0.8 ± 2.1; 2.1	-0.1 ± 0.1; 0.1	2.1 ± 7.4; 7.4	5.0 ± 5.2; 5.2
Date Collected	08-24-99	09-07-99	09-21-99	10-05-99
Lab Code	BYMI-6194	BYMI-6617	BYMI-6946	BYMI-7415
I-131	-0.07 ± 0.15; 0.15	-0.01 ± 0.19; 0.19	0.04 ± 0.23; 0.23	-0.11 ± 0.20; 0.21
Mn-54	0.9 ± 2.5; 2.5	-1.0 ± 2.6; 2.6	-0.7 ± 1.8; 1.8	0.1 ± 2.3; 2.3
Fe-59	0.3 ± 1.6; 1.6	-4.1 ± 4.9; 4.9	-3.1 ± 10.3; 10.3	-0.5 ± 2.6; 2.6
Co-58	-1.6 ± 2.4; 2.4	0.8 ± 2.3; 2.3	-0.7 ± 1.9; 1.9	-0.8 ± 2.4; 2.4
Co-60	1.4 ± 9.0; 9.0	1.6 ± 5.5; 5.5	1.0 ± 3.5; 3.5	0.1 ± 0.1; 0.1
Zn-65	-4.9 ± 6.9; 7.0	-0.2 ± 5.8; 5.8	0.3 ± 5.1; 5.1	-11.8 ± 6.6; 6.8
Zr/Nb-95	0.1 ± 2.6; 2.6	-0.4 ± 2.6; 2.6	0.7 ± 2.4; 2.4	0.3 ± 2.8; 2.8
Cs-134	-1.5 ± 1.0; 1.0	-1.3 ± 2.9; 2.9	0.5 ± 0.6; 0.6	-0.8 ± 0.5; 0.5
Cs-137	1.5 ± 2.9; 2.9	0.3 ± 2.2; 2.2	-0.4 ± 2.2; 2.2	1.0 ± 2.5; 2.5
Ba/La-140	0.4 ± 0.9; 0.9	-3.0 ± 15.0; 15.0	-0.4 ± 1.4; 1.4	0.6 ± 0.9; 0.9

BYRON

Table 3.	Milk	
	Collection:	Biweekly (May - October) Monthly (November - April)
	ODCM- Required LLDs:	I-131 = 0.5 pCi/L (May - October), I-131 = 5 pCi/L (November - April), Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
	Other LLDs:	Mn-54 = 10; Fe-59 = 15; Co-58, Co-60 = 10; Zn-65 = 15; Zr/Nb-95 = 10 pCi/L
	Units:	pCi/L

Sample Description and Concentration

BY-30 Don Roos Dairy

Date Collected	10-20-99	11-02-99	12-07-99
Lab Code	BYMI-8186	BYMI-8629	BYMI-9397
I-131	0.04 ± 0.16; 0.16	0.05 ± 0.18; 0.18	0.05 ± 0.16; 0.16
Mn-54	0.4 ± 1.7; 1.7	0.9 ± 1.9; 1.9	0.5 ± 2.0; 2.0
Fe-59	1.9 ± 5.1; 5.1	-2.7 ± 7.0; 7.0	1.3 ± 19.2; 19.2
Co-58	-0.5 ± 1.7; 1.7	-1.6 ± 2.1; 2.1	-0.4 ± 2.2; 2.2
Co-60	1.2 ± 2.4; 2.4	0.2 ± 0.7; 0.7	0.8 ± 15.1; 15.1
Zn-65	-3.8 ± 4.7; 4.7	-2.1 ± 4.6; 4.6	-2.4 ± 5.8; 5.8
Zr/Nb-95	0.9 ± 2.0; 2.0	-0.6 ± 2.7; 2.7	-0.9 ± 2.8; 2.8
Cs-134	0.1 ± 0.1; 0.1	0.5 ± 0.5; 0.5	2.0 ± 4.9; 4.9
Cs-137	0.8 ± 2.0; 2.0	-0.6 ± 2.2; 2.2	0.1 ± 2.3; 2.3
Ba/La-140	-1.2 ± 43.2; 43.2	-0.5 ± 6.0; 6.0	0.8 ± 1.7; 1.7

BYRON

Table 4. Fish, Edible Portions

Collection: Semiannually

ODCM-

Required LLDs: Mn-54 = 0.13, Fe-59 = 0.26, Co-58 = 0.13, Co-60 = 0.13, Zn-65 = 0.26, Cs-134 = 0.1, Cs-137 = 0.1 pCi/g wet weight

Other LLDs: Zr/Nb-95 = 0.20, Ba/La-140 = 0.30 pCi/g wet weight

Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-29 (C) Byron, Upstream

Date Collected	05-26-99	05-26-99	05-26-99	05-26-99
Lab Code	BYF-3534	BYF-3535	BYF-3536	BYF-3537
Type	Walleye	Golden Redhorse	River Carpsucker	Shorthead Redhorse
Mn-54	0.1 ± 1.2 ; 1.2	0.2 ± 0.9 ; 0.9	-0.3 ± 0.8 ; 0.8	-0.1 ± 0.5 ; 0.5
Fe-59	1.8 ± 29.6 ; 29.6	0.4 ± 10.1 ; 10.1	1.3 ± 27.2 ; 27.2	-0.8 ± 5.1 ; 5.1
Co-58	-0.9 ± 1.2 ; 1.2	0.6 ± 0.9 ; 0.9	0.3 ± 1.1 ; 1.1	0.3 ± 0.7 ; 0.7
Co-60	0.1 ± 0.3 ; 0.3	0.1 ± 1.8 ; 1.8	0.4 ± 0.6 ; 0.6	0.1 ± 0.5 ; 0.5
Zn-65	-0.5 ± 2.6 ; 2.6	0.2 ± 2.1 ; 2.1	-0.8 ± 2.0 ; 2.0	-1.1 ± 1.5 ; 1.5
Zr/Nb-95	-1.1 ± 1.3 ; 1.3	0.2 ± 1.0 ; 1.0	0.2 ± 1.2 ; 1.2	-1.0 ± 1.0 ; 1.0
Cs-134	0.2 ± 1.6 ; 1.6	0.2 ± 4.5 ; 4.5	0.1 ± 0.4 ; 0.4	0.4 ± 0.9 ; 0.9
Cs-137	1.1 ± 1.0 ; 1.1	0.0 ± 0.7 ; 0.7	-0.1 ± 0.9 ; 0.9	0.1 ± 0.6 ; 0.6
Ba/La-140	-0.2 ± 0.4 ; 0.4	-2.3 ± 6.6 ; 6.6	0.5 ± 0.9 ; 0.9	-0.5 ± 1.1 ; 1.1
Date Collected	05-26-99	10-13-99	10-13-99	10-13-99
Lab Code	BYF-3538	BYF-7907	BYF-7908	BYF-7909
Type	Bigmouth Buffalo	Shorthead Redhorse	Golden Redhorse	Carp
Mn-54	-0.4 ± 0.6 ; 0.6	0.1 ± 0.8 ; 0.8	0.1 ± 0.5 ; 0.5	0.3 ± 0.6 ; 0.6
Fe-59	-0.8 ± 64.0 ; 64.0	-1.1 ± 1.8 ; 1.8	0.5 ± 4.1 ; 4.1	0.2 ± 1.3 ; 1.3
Co-58	-0.0 ± 0.6 ; 0.6	0.9 ± 0.9 ; 0.9	0.5 ± 0.7 ; 0.7	0.1 ± 0.7 ; 0.7
Co-60	0.2 ± 0.4 ; 0.4	-0.2 ± 1.0 ; 1.0	-0.3 ± 0.7 ; 0.7	0.1 ± 1.0 ; 1.0
Zn-65	-0.3 ± 1.6 ; 1.6	0.7 ± 2.5 ; 2.5	-0.2 ± 1.7 ; 1.7	-4.5 ± 2.2 ; 2.2
Zr/Nb-95	-0.6 ± 0.8 ; 0.8	-1.4 ± 1.4 ; 1.4	-0.7 ± 0.8 ; 0.8	-0.3 ± 1.0 ; 1.0
Cs-134	0.2 ± 0.2 ; 0.2	-0.3 ± 4.6 ; 4.6	0.1 ± 0.1 ; 0.1	-0.1 ± 0.0 ; 0.0
Cs-137	0.4 ± 0.6 ; 0.6	-0.2 ± 0.9 ; 0.9	-0.3 ± 0.6 ; 0.6	-0.2 ± 0.6 ; 0.6
Ba/La-140	-0.8 ± 42.6 ; 42.6	-2.3 ± 3.4 ; 3.4	-0.9 ± 1.3 ; 1.3	-0.6 ± 1.0 ; 1.0

BYRON

Table 4. Fish, Edible Portions

Collection: Semiannually

ODCM-

Required LLDs: Mn-54 = 0.13, Fe-59 = 0.26, Co-58 = 0.13, Co-60 = 0.13, Zn-65 = 0.26, Cs-134 = 0.1, Cs-137 = 0.1 pCi/g wet weight

Other LLDs: Zr/Nb-95 = 0.20, Ba/La-140 = 0.30 pCi/g wet weight

Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-29 (C) Byron, Upstream

Date

Collected 10-13-99

Lab Code

BYF-7910

Type

Smallmouth Bass

Mn-54 -0.3 ± 0.9 ; 0.9Fe-59 -0.8 ± 1.8 ; 1.8Co-58 0.7 ± 0.9 ; 0.9Co-60 -0.6 ± 1.6 ; 1.6Zn-65 -1.0 ± 2.3 ; 2.3Zr/Nb-95 -0.6 ± 1.2 ; 1.2Cs-134 0.1 ± 0.3 ; 0.3Cs-137 0.7 ± 0.7 ; 0.7Ba/La-140 0.9 ± 2.5 ; 2.5

BYRON

Table 4. Fish, Edible Portions

Collection: Semiannually

ODCM-

Required LLDs: Mn-54 = 0.13, Fe-59 = 0.26, Co-58 = 0.13, Co-60 = 0.13, Zn-65 = 0.26, Cs-134 = 0.1, Cs-137 = 0.1 pCi/g wet weight

Other LLDs: Zr/Nb-95 = 0.20, Ba/La-140 = 0.30 pCi/g wet weight

Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-31 Byron, Discharge

Date Collected	05-26-99	05-26-99	05-26-99	05-26-99
Lab Code	BYF-3539	BYF-3540	BYF-3541	BYF-3542
Type	Golden Redhorse	Carp	Quillback	Walleye
Mn-54	0.1 ± 0.7; 0.7	0.1 ± 1.0; 1.0	-0.8 ± 1.1; 1.1	0.5 ± 0.9; 0.9
Fe-59	0.6 ± 2.8; 2.8	-0.1 ± 0.2; 0.2	-3.1 ± 25.0; 25.0	-0.1 ± 1.4; 1.4
Co-58	-0.2 ± 1.0; 1.0	0.0 ± 1.2; 1.2	-0.7 ± 1.4; 1.4	0.1 ± 1.4; 1.4
Co-60	-0.3 ± 0.8; 0.8	-0.3 ± 1.6; 1.6	0.8 ± 11.3; 11.3	0.7 ± 1.6; 1.6
Zn-65	-2.4 ± 3.1; 3.1	0.5 ± 2.2; 2.2	-2.1 ± 3.5; 3.6	-1.1 ± 2.7; 2.7
Zr/Nb-95	1.1 ± 1.3; 1.3	0.6 ± 1.5; 1.5	-0.2 ± 1.8; 1.8	-1.2 ± 1.3; 1.3
Cs-134	-0.3 ± 0.7; 0.7	-1.8 ± 22.5; 22.5	1.3 ± 3.6; 3.6	0.5 ± 1.4; 1.4
Cs-137	-0.6 ± 0.9; 0.9	0.1 ± 1.1; 1.1	0.1 ± 1.4; 1.4	0.9 ± 1.1; 1.1
Ba/La-140	0.7 ± 1.9; 1.9	0.9 ± 12.8; 12.8	-0.2 ± 1.4; 1.4	-1.1 ± 1.7; 1.7
Date Collected	05-26-99	10-13-99	10-13-99	10-13-99
Lab Code	BYF-3543	BYF-7911	BYF-7912	BYF-7913
Type	Silver Redhorse	Carp	Shorthead Redhorse	Golden Redhorse
Mn-54	0.0 ± 0.6; 0.6	-0.3 ± 0.7; 0.7	0.6 ± 1.0; 1.0	-0.1 ± 0.8; 0.8
Fe-59	-2.3 ± 11.9; 11.9	-1.3 ± 11.3; 11.3	1.1 ± 3.8; 3.8	0.4 ± 0.7; 0.7
Co-58	0.2 ± 0.5; 0.5	0.4 ± 0.8; 0.8	-0.5 ± 1.1; 1.1	-0.7 ± 1.2; 1.2
Co-60	0.5 ± 2.9; 2.9	0.1 ± 0.4; 0.4	0.4 ± 2.1; 2.1	-0.4 ± 3.3; 3.3
Zn-65	0.2 ± 1.2; 1.2	0.3 ± 1.9; 1.9	0.3 ± 2.6; 2.6	-2.2 ± 2.8; 2.8
Zr/Nb-95	-0.2 ± 0.7; 0.7	-1.1 ± 0.9; 0.9	-0.3 ± 1.3; 1.3	-1.5 ± 4.3; 4.3
Cs-134	0.1 ± 0.4; 0.4	-0.1 ± 0.7; 0.7	0.7 ± 3.4; 3.4	0.2 ± 7.8; 7.8
Cs-137	0.1 ± 0.5; 0.5	0.1 ± 0.7; 0.7	0.1 ± 1.0; 1.0	0.2 ± 0.8; 0.8
Ba/La-140	0.8 ± 2.1; 2.1	0.0 ± 0.0; 0.0	-2.1 ± 16.7; 16.7	-1.5 ± 3.2; 3.2

BYRON

Table 4. Fish, Edible Portions

Collection: Semiannually

ODCM-

Required LLDs: Mn-54 = 0.13, Fe-59 = 0.26, Co-58 = 0.13, Co-60 = 0.13, Zn-65 = 0.26, Cs-134 = 0.1, Cs-137 = 0.1 pCi/g wet weight

Other LLDs: Zr/Nb-95 = 0.20, Ba/La-140 = 0.30 pCi/g wet weight

Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-31 Byron, Discharge

Date Collected	10-13-99	10-13-99
Lab Code	BYF-7914	BYF-7915
Type	Freshwater Drum	Sauger
Mn-54	0.0 ± 0.5 ; 0.5	-0.2 ± 0.8 ; 0.8
Fe-59	-0.1 ± 0.3 ; 0.3	0.5 ± 16.2 ; 16.2
Co-58	0.2 ± 0.5 ; 0.5	-0.2 ± 0.8 ; 0.8
Co-60	0.1 ± 0.3 ; 0.3	0.8 ± 5.7 ; 5.7
Zn-65	-0.5 ± 1.2 ; 1.2	-2.3 ± 2.2 ; 2.2
Zr/Nb-95	0.2 ± 0.7 ; 0.7	0.1 ± 1.2 ; 1.2
Cs-134	-0.1 ± 0.1 ; 0.1	-0.1 ± 0.0 ; 0.0
Cs-137	0.4 ± 0.4 ; 0.4	0.7 ± 0.8 ; 0.8
Ba/La-140	-0.1 ± 0.5 ; 0.5	0.7 ± 1.1 ; 1.1

BYRON

Table 5. Bottom Sediments ^a

Collection: Semiannually

ODCM-

Required LLDs: Cs-134 = 0.15, Cs-137 = 0.18 pCi/g dry weight

Other LLDs: Mn-54 = 0.10; Fe-59 = 0.60; Co-58, Co-60 = 0.10; Zn-65 = 0.60; Zr/Nb-95 = 0.20;
Ba/La-140 = 0.60 pCi/g dry weightUnits: 10^{-2} pCi/g dry weight

Sample Description and Concentration

BY-12 Oregon Pool of Rock River

Date Collected	05-25-99	10-12-99
Lab Code	BYBS-3644	BYBS-7833
Mn-54	0.7 ± 0.9; 0.9	-0.1 ± 0.9; 0.9
Fe-59	-0.6 ± 2.0; 2.0	-0.5 ± 4.0; 4.0
Co-58	1.5 ± 1.2; 1.2	1.4 ± 0.9; 1.0
Co-60	1.1 ± 0.8; 0.9	3.2 ± 1.6; 1.7
Zn-65	-4.2 ± 2.5; 2.6	-5.3 ± 2.3; 2.4
Zr/Nb-95	-0.6 ± 1.8; 1.8	-0.5 ± 0.2; 0.2
Cs-134	0.8 ± 1.1; 1.1	1.5 ± 7.9; 7.9
Cs-137	1.0 ± 1.1; 1.1	2.2 ± 1.0; 1.1
Ba/La-140	-0.8 ± 0.8; 0.8	-1.6 ± 1.8; 1.8

BY-34 Rock River, Downstream

Date Collected	05-25-99	10-12-99
Lab Code	BYBS-3645	BYBS-7834
Mn-54	0.5 ± 1.3; 1.3	-0.3 ± 1.1; 1.1
Fe-59	-1.7 ± 8.2; 8.2	3.6 ± 82.7; 82.7
Co-58	-0.8 ± 1.6; 1.6	-1.0 ± 1.4; 1.4
Co-60	-0.5 ± 1.4; 1.4	0.4 ± 0.5; 0.5
Zn-65	-1.3 ± 3.2; 3.2	-7.7 ± 3.9; 4.0
Zr/Nb-95	-2.3 ± 2.7; 2.7	-0.8 ± 2.3; 2.3
Cs-134	2.7 ± 4.9; 4.9	1.4 ± 27.9; 27.9
Cs-137	2.6 ± 1.7; 1.7	1.7 ± 1.4; 1.4
Ba/La-140	-1.2 ± 1.0; 1.0	-6.5 ± 15.6; 15.6

BYRON

Table 6. Vegetation

Collection: Annually

ODCM-

Required LLDs: I-131 = 0.06, Cs-134 = 0.06, Cs-137 = 0.08 pCi/g wet weight

Other LLDs: Mn-54 = 0.05; Fe-59 = 0.10; Co-58, Co-60, Zn-65 = 0.05; Zr/Nb-95 = 0.01;
Ba/La-140 = 0.02 pCi/g wet weightUnits: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-Control 14784 Berglund Road

Date Collected	08-10-99	08-10-99
Lab Code	BYVE-5912 ^a	BYVE-5913 ^a
Type	Rhubarb Leaves	Potatoes
I-131	0.35 ± 1.18; 1.18	0.80 ± 3.42; 3.42
Mn-54	0.3 ± 0.6; 0.6	0.3 ± 0.6; 0.6
Fe-59	-0.2 ± 0.6; 0.6	0.1 ± 0.2; 0.2
Co-58	0.4 ± 0.6; 0.6	0.1 ± 0.6; 0.6
Co-60	-0.4 ± 1.1; 1.1	0.8 ± 0.9; 0.9
Zn-65	0.1 ± 1.4; 1.4	-0.7 ± 1.7; 1.7
Zr/Nb-95	0.1 ± 0.7; 0.7	-0.1 ± 0.7; 0.7
Cs-134	-0.3 ± 0.2; 0.2	0.1 ± 0.2; 0.2
Cs-137	-0.3 ± 0.7; 0.7	-0.0 ± 0.7; 0.7
Ba/La-140	-0.2 ± 2.8; 2.8	-0.2 ± 0.4; 0.4

BY-Quad 1 7083 N. River Road

Date Collected	08-10-99	08-10-99
Lab Code	BYVE-5905,6 ^a	BYVE-5907 ^a
Type	Turnip Greens	Turnips
I-131	-0.14 ± 0.28; 0.28	-0.15 ± 0.36; 0.36
Mn-54	0.3 ± 0.5; 0.5	-0.6 ± 1.2; 1.2
Fe-59	0.4 ± 1.6; 1.6	-1.3 ± 2.2; 2.2
Co-58	-0.1 ± 0.6; 0.6	-0.4 ± 1.2; 1.2
Co-60	0.6 ± 3.3; 3.3	-0.3 ± 2.2; 2.2
Zn-65	-0.7 ± 1.5; 1.5	0.3 ± 2.8; 2.8
Zr/Nb-95	-0.7 ± 0.6; 0.6	0.9 ± 1.1; 1.1
Cs-134	0.1 ± 1.1; 1.1	0.6 ± 8.9; 8.9
Cs-137	0.4 ± 0.6; 0.6	0.1 ± 1.1; 1.1
Ba/La-140	-0.0 ± 0.4; 0.4	-1.7 ± 3.3; 3.3

^a ODCM-required. Rhubarb leaves, turnip greens = broad leaf; potatoes, turnips = root vegetation.

BYRON

Table 6. Vegetation

Collection: Annually

ODCM-

Required LLDs: I-131 = 0.06, Cs-134 = 0.06, Cs-137 = 0.08 pCi/g wet weight

Other LLDs: Mn-54 = 0.05; Fe-59 = 0.10; Co-58, Co-60, Zn-65 = 0.05; Zr/Nb-95 = 0.01;
Ba/La-140 = 0.02 pCi/g wet weightUnits: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-Quad 2 3485 German Church Road

Date Collected	08-10-99	08-10-99
Lab Code	BYVE-5909 ^a	BYVE-5908 ^a
Type	Onions	Rhubarb Leaves
I-131	-0.13 ± 0.65; 0.65	-0.68 ± 0.78; 0.79
Mn-54	-0.1 ± 0.5; 0.5	-0.2 ± 0.7; 0.7
Fe-59	-0.2 ± 0.4; 0.4	3.1 ± 13.3; 13.3
Co-58	0.6 ± 0.5; 0.5	-0.3 ± 0.6; 0.6
Co-60	0.6 ± 0.7; 0.7	0.4 ± 0.7; 0.7
Zn-65	0.1 ± 1.1; 1.1	-0.8 ± 1.7; 1.7
Zr/Nb-95	-0.2 ± 0.3; 0.3	-0.2 ± 0.7; 0.7
Cs-134	-0.1 ± 0.4; 0.4	0.4 ± 1.5; 1.5
Cs-137	0.0 ± 0.6; 0.6	1.2 ± 0.6; 0.6
Ba/La-140	-1.2 ± 5.3; 5.3	-0.5 ± 0.7; 0.7

BY-Quad 3 1417 Brick Road

Date Collected	08-17-99	08-17-99
Lab Code	BYVE-6104 ^a	BYVE-6105 ^a
Type	Carrots	Broccoli Leaves
I-131	0.25 ± 0.79; 0.79	-0.60 ± 8.14; 8.14
Mn-54	-0.6 ± 0.8; 0.8	-0.0 ± 0.8; 0.8
Fe-59	1.4 ± 2.6; 2.6	-1.1 ± 12.8; 12.8
Co-58	0.1 ± 1.1; 1.1	0.2 ± 0.8; 0.8
Co-60	-0.6 ± 7.3; 7.3	0.1 ± 0.9; 0.9
Zn-65	-0.7 ± 2.9; 2.9	1.0 ± 1.9; 1.9
Zr/Nb-95	-0.4 ± 1.1; 1.1	-0.1 ± 1.0; 1.0
Cs-134	1.2 ± 2.2; 2.2	1.0 ± 0.7; 0.8
Cs-137	0.2 ± 0.9; 0.9	-0.0 ± 0.9; 0.9
Ba/La-140	-0.0 ± 0.2; 0.2	0.6 ± 2.2; 2.2

^a ODCM-required. Rhubarb leaves, broccoli leaves = broad leaf; onions, carrots = root vegetation.

BYRON

Table 6. Vegetation

Collection: Annually

ODCM-

Required LLDs: I-131 = 0.06, Cs-134 = 0.06, Cs-137 = 0.08 pCi/g wet weight

Other LLDs: Mn-54 = 0.05; Fe-59 = 0.10; Co-58, Co-60, Zn-65 = 0.05; Zr/Nb-95 = 0.01;
Ba/La-140 = 0.02 pCi/g wet weightUnits: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BY-Quad 4 6170 Razorville Road

Date Collected	08-10-99	08-10-99
Lab Code	BYVE-5910 ^a	BYVE-5911 ^a
Type	Broccoli Leaves	Potatoes
I-131	0.59 ± 0.88; 0.89	-0.74 ± 3.46; 3.46
Mn-54	-0.0 ± 0.9; 0.9	-0.2 ± 1.0; 1.0
Fe-59	0.9 ± 8.0; 8.0	-1.0 ± 2.6; 2.6
Co-58	0.3 ± 1.0; 1.0	-0.1 ± 0.9; 0.9
Co-60	0.8 ± 0.6; 0.6	-0.2 ± 0.3; 0.3
Zn-65	2.2 ± 1.6; 1.6	-0.1 ± 2.5; 2.5
Zr/Nb-95	-0.9 ± 1.0; 1.0	-0.3 ± 1.0; 1.0
Cs-134	-0.4 ± 0.6; 0.6	0.3 ± 0.4; 0.4
Cs-137	-0.2 ± 1.0; 1.0	0.2 ± 1.1; 1.1
Ba/La-140	0.1 ± 0.2; 0.2	0.1 ± 0.7; 0.7

^a ODCM-required. Broccoli leaves = broad leaf, potatoes = root vegetation.

BYRON

Table 7. Surface Water

Collection: Monthly composites of weekly collections

ODCM- Gross Beta = 4, Mn-54 = 15, Fe-59 = 30, Co-58 = 15, Co-60 = 15, Zn-65 = 30,
Required LLDs: Zr/Nb-95 = 15, Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L

Units: pCi/L

Sample Description and Concentration

BY-12 Oregon Pool of Rock River, Downstream

1999 Collection Period	January	February	March
Lab Code	BYSW-416 ^a	BYSW-1371	BYSW-2012
Gross Beta	5.4 ± 1.9; 2.1	2.0 ± 1.7; 1.7	3.8 ± 1.6; 1.7
Mn-54	-0.6 ± 1.4; 1.4	-0.5 ± 2.8; 2.8	0.5 ± 1.7; 1.7
Fe-59	-3.1 ± 3.6; 3.6	1.5 ± 2.6; 2.6	3.7 ± 4.3; 4.4
Co-58	0.6 ± 1.4; 1.4	0.5 ± 2.8; 2.8	1.0 ± 1.7; 1.7
Co-60	0.1 ± 0.2; 0.2	-0.2 ± 0.3; 0.3	-0.7 ± 1.5; 1.5
Zn-65	0.1 ± 2.8; 2.8	-5.2 ± 5.5; 5.6	-5.4 ± 3.6; 3.7
Zr/Nb-95	0.4 ± 1.9; 1.9	4.8 ± 3.6; 3.7	0.4 ± 2.2; 2.2
Cs-134	-0.4 ± 0.1; 0.1	1.2 ± 2.6; 2.6	0.7 ± 0.6; 0.6
Cs-137	0.1 ± 1.5; 1.5	1.0 ± 3.1; 3.1	1.4 ± 1.9; 1.9
Ba/La-140	-1.5 ± 8.2; 8.2	1.4 ± 2.5; 2.5	2.1 ± 9.6; 9.6
1999 Collection Period	April	May	June
Lab Code	BYSW-3034	BYSW-3796	BYSW-4723
Gross Beta	3.4 ± 1.2; 1.3	3.6 ± 1.6; 1.7	2.4 ± 1.4; 1.5
Mn-54	0.8 ± 2.6; 2.6	1.4 ± 1.6; 1.6	0.9 ± 2.8; 2.8
Fe-59	1.5 ± 2.3; 2.3	-0.2 ± 0.8; 0.8	-0.4 ± 1.2; 1.2
Co-58	-0.5 ± 2.7; 2.7	-1.5 ± 1.8; 1.8	-0.1 ± 3.3; 3.3
Co-60	1.2 ± 2.1; 2.1	1.3 ± 3.1; 3.1	0.3 ± 0.6; 0.6
Zn-65	2.6 ± 5.1; 5.1	-3.3 ± 4.3; 4.3	-3.9 ± 5.4; 5.4
Zr/Nb-95	-0.4 ± 3.6; 3.6	0.3 ± 2.4; 2.4	-3.7 ± 4.6; 4.6
Cs-134	0.6 ± 0.6; 0.6	-0.4 ± 0.3; 0.3	-0.4 ± 1.6; 1.6
Cs-137	1.8 ± 2.6; 2.6	0.8 ± 1.8; 1.8	-0.1 ± 2.9; 2.9
Ba/La-140	-1.8 ± 4.4; 4.4	2.2 ± 17.6; 17.6	0.4 ± 0.9; 0.9

BYRON

Table 7.	Surface Water
Collection:	Monthly composites of weekly collections
ODCM-	Gross Beta = 4, Mn-54 = 15, Fe-59 = 30, Co-58 = 15, Co-60 = 15, Zn-65 = 30,
Required LLDs:	Zr/Nb-95 = 15, Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-12 Oregon Pool of Rock River, Downstream

1999 Collection Period	July	August	September
Lab Code	BYSW-5724	BYSW-6599	BYSW-7767
Gross Beta	3.0 ± 1.5; 1.6	4.4 ± 1.7; 1.8	3.7 ± 1.5; 1.6
Mn-54	-0.6 ± 1.8; 1.8	-0.2 ± 1.5; 1.5	0.2 ± 2.0; 2.0
Fe-59	2.7 ± 3.0; 3.1	0.6 ± 2.1; 2.1	0.9 ± 9.7; 9.7
Co-58	-1.0 ± 2.1; 2.1	0.5 ± 1.7; 1.7	1.4 ± 2.4; 2.4
Co-60	0.3 ± 8.4; 8.4	-0.8 ± 7.9; 7.9	0.5 ± 7.2; 7.2
Zn-65	-3.2 ± 5.5; 5.5	-2.5 ± 3.5; 3.5	-0.7 ± 4.2; 4.2
Zr/Nb-95	-1.0 ± 2.7; 2.7	-0.4 ± 2.3; 2.3	-1.2 ± 2.2; 2.2
Cs-134	1.0 ± 0.6; 0.6	-0.7 ± 0.4; 0.4	-1.5 ± 1.4; 1.4
Cs-137	-0.9 ± 2.1; 2.1	-0.4 ± 1.8; 1.8	-0.4 ± 2.2; 2.2
Ba/La-140	-1.9 ± 3.3; 3.4	4.2 ± 6.6; 6.6	1.7 ± 3.3; 3.3
1999 Collection Period	October	November	December
Lab Code	BYSW-8560	BYSW-9346	BYSW-9969 ^b
Gross Beta	2.6 ± 1.9; 1.9	3.4 ± 1.1; 1.2	2.6 ± 1.4; 1.4
Mn-54	-1.4 ± 2.1; 2.1	-0.6 ± 2.1; 2.1	0.6 ± 1.3; 1.3
Fe-59	4.0 ± 21.7; 21.7	0.6 ± 2.7; 2.7	-1.6 ± 2.9; 2.9
Co-58	-1.2 ± 2.1; 2.1	-1.0 ± 2.5; 2.5	1.0 ± 1.4; 1.4
Co-60	2.4 ± 5.6; 5.7	1.2 ± 18.6; 18.6	-0.6 ± 1.4; 1.4
Zn-65	-1.2 ± 4.6; 4.6	-3.3 ± 5.6; 5.6	1.1 ± 3.0; 3.0
Zr/Nb-95	-1.2 ± 2.2; 2.2	-0.6 ± 2.3; 2.3	-1.0 ± 1.5; 1.5
Cs-134	-1.9 ± 12.0; 12.0	-0.4 ± 0.6; 0.6	0.7 ± 1.5; 1.5
Cs-137	0.5 ± 1.7; 1.7	-0.6 ± 2.5; 2.5	2.7 ± 1.5; 1.5
Ba/La-140	1.3 ± 4.1; 4.1	3.2 ± 10.8; 10.8	0.5 ± 1.6; 1.6

^a Results reflect one collection for month; river frozen.

^b Results reflect two collections for month; river frozen.

BYRON

Table 7.	Surface Water
Collection:	Monthly composites of weekly collections
ODCM-	Gross Beta = 4, Mn-54 = 15, Fe-59 = 30, Co-58 = 15, Co-60 = 15, Zn-65 = 30,
Required LLDs:	Zr/Nb-95 = 15, Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-29 (C) Byron, Upstream

1999 Collection Period	January	February	March
Lab Code	NS ^a	BYSW-1372	BYSW-2013
Gross Beta	-	3.5 ± 1.2; 1.3	3.8 ± 1.5; 1.6
Mn-54	-	-0.2 ± 1.4; 1.4	1.5 ± 3.0; 3.0
Fe-59	-	1.2 ± 4.2; 4.2	5.0 ± 9.6; 9.6
Co-58	-	-1.4 ± 1.7; 1.8	1.2 ± 2.9; 2.9
Co-60	-	0.3 ± 1.3; 1.3	2.1 ± 2.9; 2.9
Zn-65	-	-0.5 ± 3.0; 3.0	-0.1 ± 4.7; 4.7
Zr/Nb-95	-	-0.1 ± 0.6; 0.6	1.4 ± 3.3; 3.3
Cs-134	-	0.3 ± 0.5; 0.5	-1.3 ± 1.4; 1.4
Cs-137	-	0.4 ± 1.8; 1.8	0.6 ± 3.2; 3.2
Ba/La-140	-	-0.7 ± 4.0; 4.0	-1.5 ± 3.2; 3.2
1999 Collection Period	April	May	June
Lab Code	BYSW-3035	BYSW-3797	BYSW-4724
Gross Beta	2.8 ± 1.1; 1.2	3.4 ± 1.6; 1.6	2.7 ± 1.4; 1.5
Mn-54	2.0 ± 3.2; 3.2	-0.7 ± 2.6; 2.6	1.3 ± 1.7; 1.7
Fe-59	1.3 ± 0.9; 0.9	-1.0 ± 4.6; 4.6	0.9 ± 2.1; 2.1
Co-58	3.7 ± 3.6; 3.6	0.6 ± 2.2; 2.2	-0.1 ± 2.0; 2.0
Co-60	-1.1 ± 3.8; 3.8	2.1 ± 9.2; 9.2	0.7 ± 0.7; 0.7
Zn-65	3.2 ± 7.4; 7.4	2.3 ± 5.8; 5.8	-0.3 ± 3.5; 3.5
Zr/Nb-95	0.6 ± 4.3; 4.3	1.2 ± 3.8; 3.8	-1.6 ± 2.5; 2.5
Cs-134	2.1 ± 4.0; 4.0	0.1 ± 0.2; 0.2	0.3 ± 0.2; 0.2
Cs-137	1.6 ± 4.0; 4.0	1.1 ± 2.5; 2.5	-0.7 ± 2.1; 2.1
Ba/La-140	-1.8 ± 1.9; 1.9	-3.9 ± 14.2; 14.2	-4.3 ± 17.8; 17.8

BYRON

Table 7.	Surface Water
Collection:	Monthly composites of weekly collections
ODCM-Required LLDs:	Gross Beta = 4, Mn-54 = 15, Fe-59 = 30, Co-58 = 15, Co-60 = 15, Zn-65 = 30, Zr/Nb-95 = 15, Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Units:	pCi/L

Sample Description and Concentration

BY-29 (C) Byron, Upstream

1999 Collection Period	July	August	September
Lab Code	BYSW-5725	BYSW-6600	BYSW-7768
Gross Beta	2.8 ± 1.5 ; 1.5	3.2 ± 1.5 ; 1.6	5.1 ± 1.5 ; 1.7
Mn-54	-0.1 ± 3.2 ; 3.2	-1.2 ± 1.9 ; 1.9	0.4 ± 3.0 ; 3.0
Fe-59	-2.6 ± 2.7 ; 2.7	-2.8 ± 5.4 ; 5.5	-9.1 ± 22.2 ; 22.2
Co-58	-1.0 ± 2.9 ; 2.9	0.1 ± 2.0 ; 2.0	0.6 ± 3.7 ; 3.7
Co-60	1.9 ± 5.5 ; 5.5	-0.3 ± 0.9 ; 0.9	2.6 ± 11.9 ; 11.9
Zn-65	-4.9 ± 6.5 ; 6.5	-6.9 ± 4.7 ; 4.8	9.2 ± 6.6 ; 6.8
Zr/Nb-95	-1.8 ± 4.4 ; 4.4	-2.5 ± 2.7 ; 2.8	-2.8 ± 3.9 ; 3.9
Cs-134	0.8 ± 1.2 ; 1.2	0.1 ± 0.1 ; 0.1	-0.8 ± 9.3 ; 9.3
Cs-137	1.6 ± 2.9 ; 2.9	0.3 ± 2.0 ; 2.0	0.6 ± 3.1 ; 3.1
Ba/La-140	4.6 ± 11.9 ; 11.9	2.2 ± 4.7 ; 4.7	-8.7 ± 73.4 ; 73.4
1999 Collection Period	October	November	December
Lab Code	BYSW-8561	BYSW-9347	BYSW-9970 ^b
Gross Beta	3.3 ± 1.9 ; 2.0	2.8 ± 1.1 ; 1.2	2.7 ± 1.5 ; 1.6
Mn-54	-0.5 ± 2.2 ; 2.2	-2.3 ± 2.0 ; 2.1	-0.1 ± 1.9 ; 1.9
Fe-59	1.9 ± 3.1 ; 3.1	-2.0 ± 3.8 ; 3.8	-6.5 ± 4.4 ; 4.5
Co-58	1.2 ± 2.0 ; 2.0	0.2 ± 2.0 ; 2.0	-1.4 ± 1.8 ; 1.8
Co-60	1.0 ± 1.9 ; 1.9	0.5 ± 0.9 ; 0.9	-0.8 ± 2.7 ; 2.7
Zn-65	-5.3 ± 4.1 ; 4.1	1.3 ± 4.0 ; 4.0	-5.9 ± 5.8 ; 5.9
Zr/Nb-95	1.2 ± 3.0 ; 3.0	-1.9 ± 2.2 ; 2.2	1.4 ± 2.0 ; 2.0
Cs-134	1.3 ± 0.5 ; 0.5	1.0 ± 3.3 ; 3.3	0.1 ± 2.5 ; 2.5
Cs-137	-1.0 ± 2.2 ; 2.2	-0.9 ± 2.0 ; 2.0	-1.2 ± 2.1 ; 2.1
Ba/La-140	3.9 ± 11.3 ; 11.3	-1.7 ± 12.2 ; 12.2	2.2 ± 3.0 ; 3.0

^a No samples available for month; river frozen.

^b Results reflect two collections for month; river frozen.

BYRON

Table 7. Surface Water
Collection: Quarterly composites of weekly collections
ODCM-
Required LLD: H-3 = 200 pCi/L
Units: pCi/L

1999 Collection Period	<u>Sample Description and Concentration</u>	
	Lab Code	Tritium

BY-12 Oregon Pool of Rock River, Downstream

1st Quarter	BYSW- 2298	421 ± 96; 112
2nd Quarter	BYSW- 4797	542 ± 100; 124
3rd Quarter	BYSW- 7209	1,319 ± 136; 225
4th Quarter	BYSW- 9971	689 ± 114; 147

BY-29 (C) Byron, Upstream

1st Quarter	BYSW- 2299,00	67 ± 58; 58
2nd Quarter	BYSW- 4798	-9 ± 86; 86
3rd Quarter	BYSW- 7210	-17 ± 91; 91
4th Quarter	BYSW- 9972	-14 ± 87; 87

BYRON

Table 8. Well Water
Collection: Quarterly
ODCM- H-3 = 200, Mn-54 = 15, Fe-59 = 30, Co-58 = 15, Co-60 = 15, Zn-65 = 30,
Required LLDs: Zr/Nb-95 = 15, Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
Units: pCi/L

Sample Description and Concentration				
<u>BY-14 ComEd Offsite Well</u>				
Date Collected	01-05-99	04-06-99	07-07-99	10-05-99
Lab Code	BYWW-20	BYWW-2127	BYWW-4813	BYWW-7425
H-3	68 ± 85; 85	125 ± 87; 89	44 ± 89; 90	-8 ± 90; 90
Mn-54	0.1 ± 1.6; 1.6	-0.2 ± 2.4; 2.4	-0.4 ± 2.8; 2.8	-0.1 ± 2.0; 2.0
Fe-59	-1.2 ± 1.8; 1.8	-4.3 ± 85.0; 85.0	1.8 ± 3.6; 3.6	2.6 ± 19.2; 19.2
Co-58	-0.9 ± 1.6; 1.6	0.8 ± 2.6; 2.6	-0.1 ± 3.7; 3.7	-2.1 ± 2.4; 2.4
Co-60	-0.3 ± 1.0; 1.0	1.6 ± 6.7; 6.7	-0.1 ± 0.6; 0.6	-0.6 ± 1.4; 1.4
Zn-65	-4.3 ± 3.9; 3.9	4.5 ± 5.0; 5.0	-7.4 ± 7.9; 8.0	-6.3 ± 5.1; 5.2
Zr/Nb-95	-0.3 ± 1.7; 1.7	0.8 ± 3.1; 3.1	-2.0 ± 4.7; 4.7	-1.7 ± 3.2; 3.2
Cs-134	0.1 ± 0.1; 0.1	-0.4 ± 1.1; 1.1	1.1 ± 1.4; 1.4	-0.3 ± 0.2; 0.2
Cs-137	0.5 ± 1.8; 1.8	0.1 ± 2.3; 2.3	0.6 ± 3.3; 3.3	0.5 ± 2.0; 2.0
Ba/La-140	-0.8 ± 2.4; 2.4	3.8 ± 9.6; 9.6	-10.4 ± 59.2; 59.2	0.3 ± 0.7; 0.7
<u>BY-18 McCoy Farmstead</u>				
Date Collected	01-05-99	04-06-99	07-07-99	10-05-99
Lab Code	BYWW-21	BYWW-2128	BYWW-4814	BYWW-7426
H-3	47 ± 84; 84	50 ± 84; 84	135 ± 84; 86	-38 ± 89; 89
Mn-54	-0.9 ± 1.6; 1.6	0.4 ± 1.3; 1.3	-1.3 ± 2.7; 2.7	0.1 ± 2.3; 2.3
Fe-59	-0.4 ± 3.4; 3.4	0.2 ± 1.6; 1.6	5.4 ± 13.1; 13.1	3.3 ± 6.4; 6.4
Co-58	0.9 ± 1.5; 1.5	-0.9 ± 1.5; 1.5	-0.2 ± 2.8; 2.8	-1.1 ± 2.8; 2.8
Co-60	1.0 ± 1.1; 1.1	-0.8 ± 2.4; 2.4	1.0 ± 1.1; 1.1	-0.6 ± 3.5; 3.5
Zn-65	-6.5 ± 3.4; 3.5	-0.6 ± 2.6; 2.6	0.8 ± 4.9; 4.9	-5.2 ± 4.7; 4.8
Zr/Nb-95	-0.6 ± 2.0; 2.0	-0.6 ± 1.9; 1.9	0.4 ± 4.0; 4.0	2.9 ± 3.2; 3.3
Cs-134	-0.0 ± 0.0; 0.0	0.3 ± 0.1; 0.1	0.3 ± 0.6; 0.6	1.7 ± 3.4; 3.4
Cs-137	-0.7 ± 1.7; 1.7	0.5 ± 1.4; 1.4	2.3 ± 2.4; 2.4	-0.3 ± 2.5; 2.5
Ba/La-140	-0.0 ± 0.2; 0.2	-1.0 ± 7.4; 7.4	-2.0 ± 7.2; 7.2	-3.1 ± 11.0; 11.0

BYRON

Table 8.	Well Water
	Collection: Quarterly
	ODCM- H-3 = 200, Mn-54 = 15, Fe-59 = 30, Co-58 = 15, Co-60 = 15, Zn-65 = 30,
	Required LLDs: Zr/Nb-95 = 15, Cs-134 = 15, Cs-137 = 18, Ba/La-140 = 15 pCi/L
	Units: pCi/L

Sample Description and Concentration

BY-32 Ron Welford

Date Collected	01-05-99	04-06-99	07-07-99	10-05-99
Lab Code	BYWW-22	BYWW-2129	BYWW-4815	BYWW-7427
H-3	140 ± 88; 90	121 ± 87; 88	111 ± 83; 84	50 ± 93; 93
Mn-54	-1.1 ± 2.5; 2.5	0.5 ± 2.5; 2.5	0.9 ± 2.0; 2.0	1.1 ± 1.9; 1.9
Fe-59	-1.4 ± 1.7; 1.7	5.1 ± 9.7; 9.8	-1.7 ± 68.5; 68.5	0.6 ± 1.1; 1.1
Co-58	-2.2 ± 2.6; 2.6	-1.3 ± 2.9; 2.9	1.6 ± 2.1; 2.1	-1.5 ± 2.1; 2.1
Co-60	0.7 ± 1.3; 1.3	3.3 ± 11.4; 11.4	2.1 ± 1.9; 1.9	-0.5 ± 25.4; 25.4
Zn-65	-11.6 ± 6.0; 6.3	0.3 ± 4.7; 4.7	-2.6 ± 4.2; 4.2	1.9 ± 4.1; 4.1
Zr/Nb-95	-4.3 ± 3.0; 3.1	-1.4 ± 3.2; 3.2	0.1 ± 2.7; 2.7	2.7 ± 2.5; 2.5
Cs-134	-0.9 ± 1.2; 1.2	0.7 ± 1.1; 1.1	0.4 ± 0.5; 0.5	-1.5 ± 6.6; 6.6
Cs-137	0.3 ± 2.5; 2.5	0.5 ± 2.5; 2.5	1.5 ± 1.8; 1.8	0.7 ± 1.8; 1.8
Ba/La-140	1.8 ± 68.7; 68.7	1.2 ± 26.8; 26.8	-3.1 ± 14.2; 14.2	1.2 ± 6.7; 6.7

BYRON

MILCH ANIMALS, NEAREST LIVESTOCK, AND
NEAREST RESIDENCES CENSUSES

BYRON

MILCH ANIMALS CENSUS, 1999

Sampling Locations

BY-26 Glen Hazzard's Dairy
 11.6 miles, Sector A
 10% Pasture
 90% Feed

BY-20 K. Reeverts Dairy Farm
 1.9 miles, Sector C
 0% Pasture
 100% Feed

BY-30 Don Roos Dairy
 5.1 miles, Sector G
 0% Pasture
 100% Feed

 2.5 miles, Sector N
 10% Pasture
 90% Feed

 5.8 miles, Sector Q
 20% Pasture
 80% Feed

Census conducted by W. Mueller on August 21, 1999

BYRON

NEAREST LIVESTOCK CENSUS, 1999

Nearest livestock of the Byron Station within a 6.2 mile radius.

<u>Sector</u>	<u>Direction</u>	<u>Distance</u>
A	N	3.0 miles
B	NNE	1.5 miles
C	NE	0.4 miles
D	ENE	3.0 miles
E	E	1.4 miles
F	ESE	1.5 miles
G	SE	3.5 miles
H	SSE	3.2 miles
J	S	0.6 miles
K	SSW	2.2 miles
L	SW	3.2 miles
M	WSW	1.7 miles
N	W	2.5 miles
P	WNW	3.5 miles
Q	NW	3.8 miles
R	NNW	1.4 miles

Census conducted by W. Mueller on August 21, 1999

BYRON

NEAREST RESIDENCE CENSUS, 1999

Nearest resident of the Byron Station within a 6.2 mile radius.

<u>Sector</u>	<u>Direction</u>	<u>Distance</u>
A	N	2.7 miles
B	NNE	1.0 miles
C	NE	1.2 miles
D	ENE	1.3 miles
E	E	1.3 miles
F	ESE	1.5 miles
G	SE	0.8 miles
H	SSE	0.6 miles
J	S	0.5 miles
K	SSW	0.6 miles
L	SW	0.8 miles
M	WSW	1.7 miles
N	W	1.8 miles
P	WNW	0.8 miles
Q	NW	1.0 miles
R	NNW	1.3 miles

Census conducted by W. Mueller on August 21, 1999

BYRON

4.0 TLD DATA*

*TLD Data provided by Commonwealth Edison Company.

Commonwealth Edison Company

Date: 27-JAN-00

Environmental Site Report V4 for Byron

Gamma Radiation Measured in mR by TLDs

Site	Description	Quarter 1 1999	Quarter 2 1999	Quarter 3 1999	Quarter 4 1999
I. INDICATOR LOCATIONS					
a. Air Samplers					
BY-01-1	BYRON	11.3	12.6	12.7	12.5
BY-01-2	BYRON	11.1	13.0	12.4	11.8
BY-04-1	PAYNES PT.	14.2	17.2	16.6	16.9
BY-04-2	PAYNES PT.	13.6	15.0	15.5	16.0
BY-06-1	OREGON	11.7	13.1	11.7	11.8
BY-06-2	OREGON	11.8	12.9	11.9	12.5
BY-21-1	NEARSITE N	10.6	17.2	11.2	11.0
BY-21-2	NEARSITE N	10.8	12.4	11.0	11.0
BY-22-1	NEARSITE ESE	14.8	16.3	16.6	15.6
BY-22-2	NEARSITE ESE	15.2	17.1	17.0	16.5
BY-23-1	NEARSITE S	14.4	17.0	15.7	15.8
BY-23-2	NEARSITE S	13.8	15.9	14.8	15.1
BY-24-1	NEARSITE SW	13.5	14.3	14.8	14.2
BY-24-2	NEARSITE SW	13.2	15.2	13.6	14.2
Air Sampler Mean $\pm$ S.D.		12.9 $\pm$ 1.6	14.9 $\pm$ 1.9	14.0 $\pm$ 2.1	13.9 $\pm$ 2.1
Annual Air Sampler Mean $\pm$ S.D.					13.9 $\pm$ 2.0

b. Inner Ring (100 Series)

BY-101-1	10.8	12.6	11.5	10.6
BY-101-2	10.6	12.2	10.9	11.0
BY-102-1	15.1	17.9	18.0	17.3
BY-102-2	15.6	17.9	19.1	17.5
BY-103-1	14.8	16.5	16.9	15.7
BY-103-2	14.6	15.7	16.1	16.0
BY-104-1	14.0	16.7	16.8	16.2
BY-104-2	15.3	15.8	18.0	17.3
BY-105-1	17.5 #	17.4	17.1	15.9
BY-105-2	14.9	17.9	18.3	17.5
BY-106-1	15.1	16.7	17.1	16.8
BY-106-2	14.6	16.7	16.9	16.7
BY-107-1	14.9	18.7	17.7	17.9
BY-107-2	15.2	17.6	18.2	17.4
BY-108-1	15.6	17.7	17.1	17.0
BY-108-2	14.1	14.8	16.3	15.5
BY-109-1	14.3	16.5	15.8	15.3
BY-109-2	13.8	15.3 #	15.1	15.2
BY-110-1	13.6	15.1	15.2	14.6

Date: 27-JAN-00

Environmental Site Report V4 for Byron

Site	Description	Quarter 1 1999	Quarter 2 1999	Quarter 3 1999	Quarter 4 1999
b. Inner Ring (100 Series)					
BY-110-2		14.1	15.5	16.2	15.5
BY-111-3		15.7	16.7	17.8 #	16.9
BY-111-4		14.4	17.4	15.8	16.7
BY-112-3		14.6	17.0	16.6	15.3
BY-112-4		14.5	15.7	15.7	15.5
BY-113-1		14.4	16.0	16.2	15.6
BY-113-2		12.5	14.0 #	13.5	13.2
BY-114-1		11.9	13.1	13.3	12.8
BY-114-2		14.1	15.2	15.6	14.8
BY-115-1		14.6	15.7	16.6	16.2
BY-115-2		12.9	15.0	14.5	13.4
BY-116-1		12.8	14.2 #	14.0	13.0
BY-116-2		12.7	14.0	14.5	13.6
Inner Ring Mean $\pm$ S.D.		14.2 $\pm$ 1.4	15.9 $\pm$ 1.6	16.0 $\pm$ 1.9	15.4 $\pm$ 1.9
Annual Inner Ring Mean $\pm$ S.D.					15.4 $\pm$ 1.8

c. Outer Ring (200 Series)

BY-201-3	14.0	16.1	16.7	15.0
BY-201-4	14.4	16.3	16.0	14.7
BY-202-1	13.6	18.8	15.8	13.9
BY-202-2	17.3	17.4	17.9	17.2
BY-203-1	11.1	13.0	12.3	11.9
BY-203-2	14.0	15.1 #	15.3	14.9
BY-204-1	12.5	14.8	13.9	13.9
BY-204-2	14.8	16.7	17.5	16.9
BY-205-1	15.5	17.7	17.4	17.1
BY-205-2	14.4	15.9	15.2	15.2
BY-206-1	15.0	22.2	17.9	16.0
BY-206-2	15.4	17.7	18.5	16.7
BY-207-1	14.9	17.5 #	18.6	17.9 #
BY-207-2	15.1	17.1	16.7	16.9
BY-208-1	16.3	17.9 #	17.6	17.4
BY-208-2	15.2	18.0	17.4	16.9
BY-209-1	15.1	16.8	17.7	15.8
BY-209-4	15.2	18.0	16.8	16.9
BY-210-3	14.8	16.3	18.8	15.9
BY-210-4	14.0	16.9	16.1	15.7
BY-211-1	14.5	16.3	15.7	16.7
BY-211-4	14.6	16.6	17.1	16.9
BY-212-1	19.5	16.8	17.5	18.1
BY-212-4	16.8	18.5	18.4	18.4
BY-213-1	15.1	16.8	17.4	17.8
BY-213-4	15.7	17.2	17.0 #	17.1
BY-214-1	17.1 #	17.7	16.4	17.7
BY-214-4	15.1	17.0	16.3	16.5
BY-215-1	16.6	17.4	16.8	18.8
BY-215-4	16.0	17.3	17.6	17.2
BY-216-1	16.2	18.2	18.0	17.9

Date: 27-JAN-00

Environmental Site Report V4 for Byron

Site	Description	Quarter 1 1999	Quarter 2 1999	Quarter 3 1999	Quarter 4 1999
c. Outer Ring (200 Series)					
BY-216-2		14.9	16.2	15.9	15.8
	Outer Ring Mean $\pm$ S.D.	15.1 $\pm$ 1.5	17.1 $\pm$ 1.5	16.8 $\pm$ 1.4	16.4 $\pm$ 1.5
	Annual Outer Ring Mean $\pm$ S.D.				16.4 $\pm$ 1.6
	INDICATOR LOCATION MEAN $\pm$ S.D.	14.3 $\pm$ 1.7	16.2 $\pm$ 1.8	16.0 $\pm$ 2.0	15.6 $\pm$ 2.0
	Annual INDICATOR LOCATION MEAN $\pm$ S.D.				15.5 $\pm$ 2.0

II. CONTROL LOCATIONS

BY-08-1	LEAF RIVER	13.4	14.7	14.0	14.1
BY-08-2	LEAF RIVER	13.6	14.6	14.2	14.7
	CONTROL LOCATION Mean $\pm$ S.D.	13.5 $\pm$ 0.1	14.7 $\pm$ 0.1	14.1 $\pm$ 0.1	14.4 $\pm$ 0.4
	Annual CONTROL LOCATION Mean $\pm$ S.D.				14.2 $\pm$ 0.5

III. SPECIAL INTEREST LOCATIONS

BY-301-1	OSGSF	10.7	12.8	14.0	11.1
BY-302-1	PARKING LOT	14.0	15.0	14.5	14.6
BY-314-1	RESTRICTED AREA FENCE/WEST OF DAW	12.0	13.8	13.0	12.5
	SPECIAL INTEREST LOCATION Mean $\pm$ S.D.	12.2 $\pm$ 1.7	13.9 $\pm$ 1.1	13.8 $\pm$ 0.8	12.7 $\pm$ 1.8
	Annual SPECIAL INTEREST LOCATION Mean $\pm$ S.D.				13.2 $\pm$ 1.4

COMMENTS: *** Indicates lost dosimeter. A portion of the Dose was estimated.

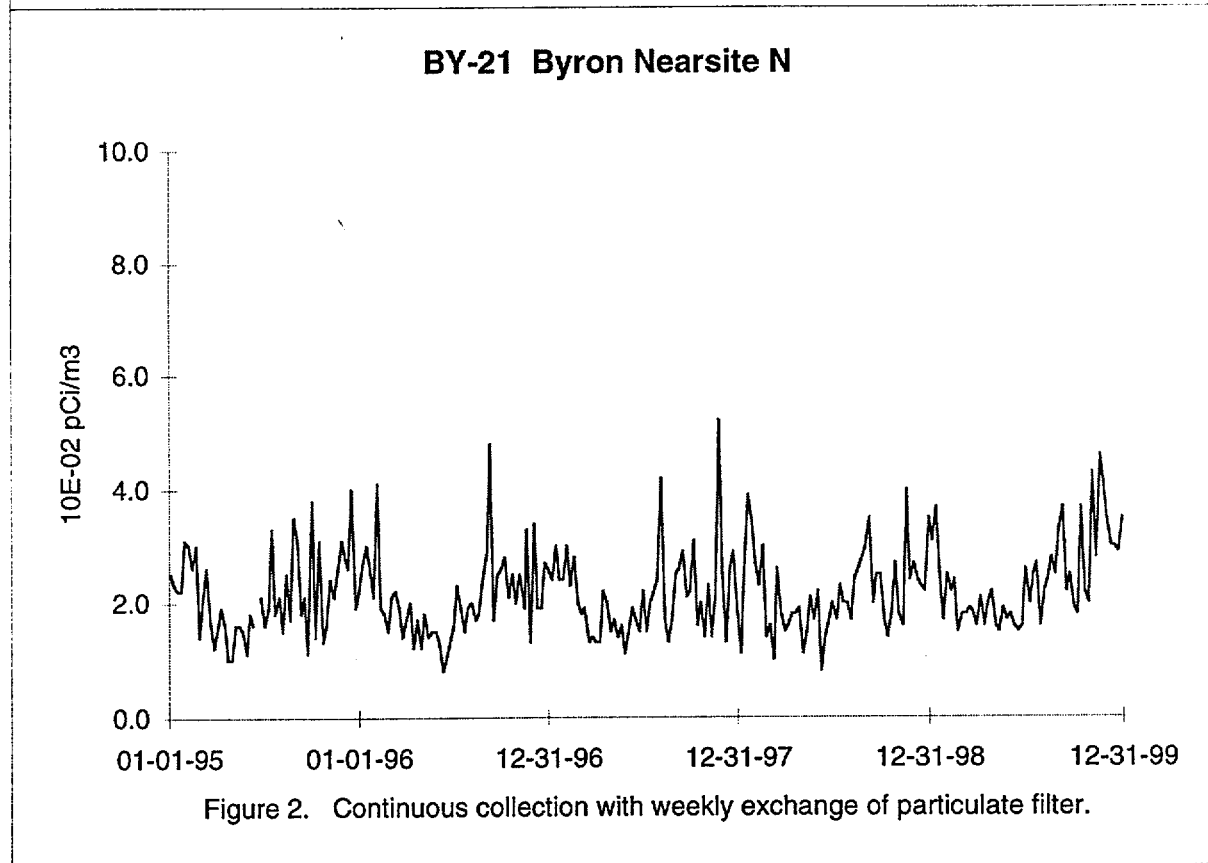
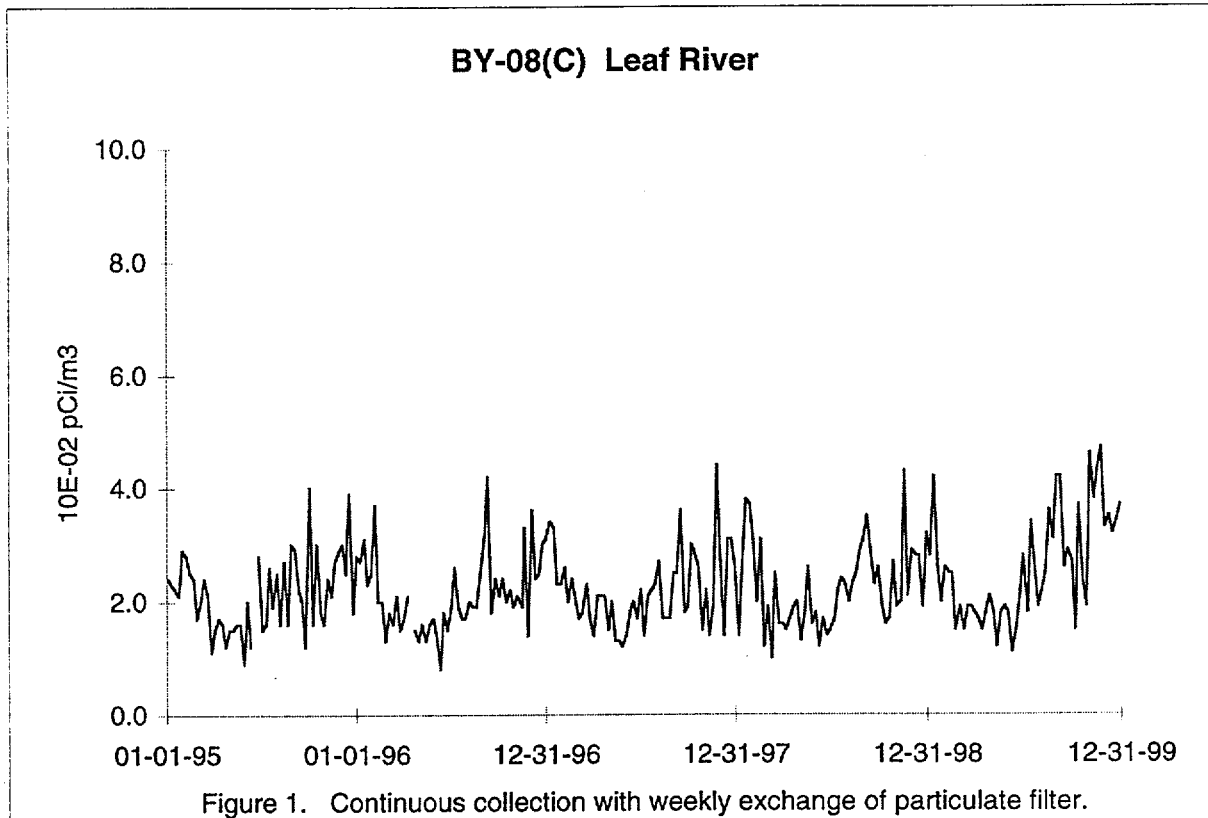
Indicates edited dosimeter. The original Dose was replaced with an estimated value.

"n" (n=2..9) Indicates dose is average of n values. A "+" means more than 9 values.

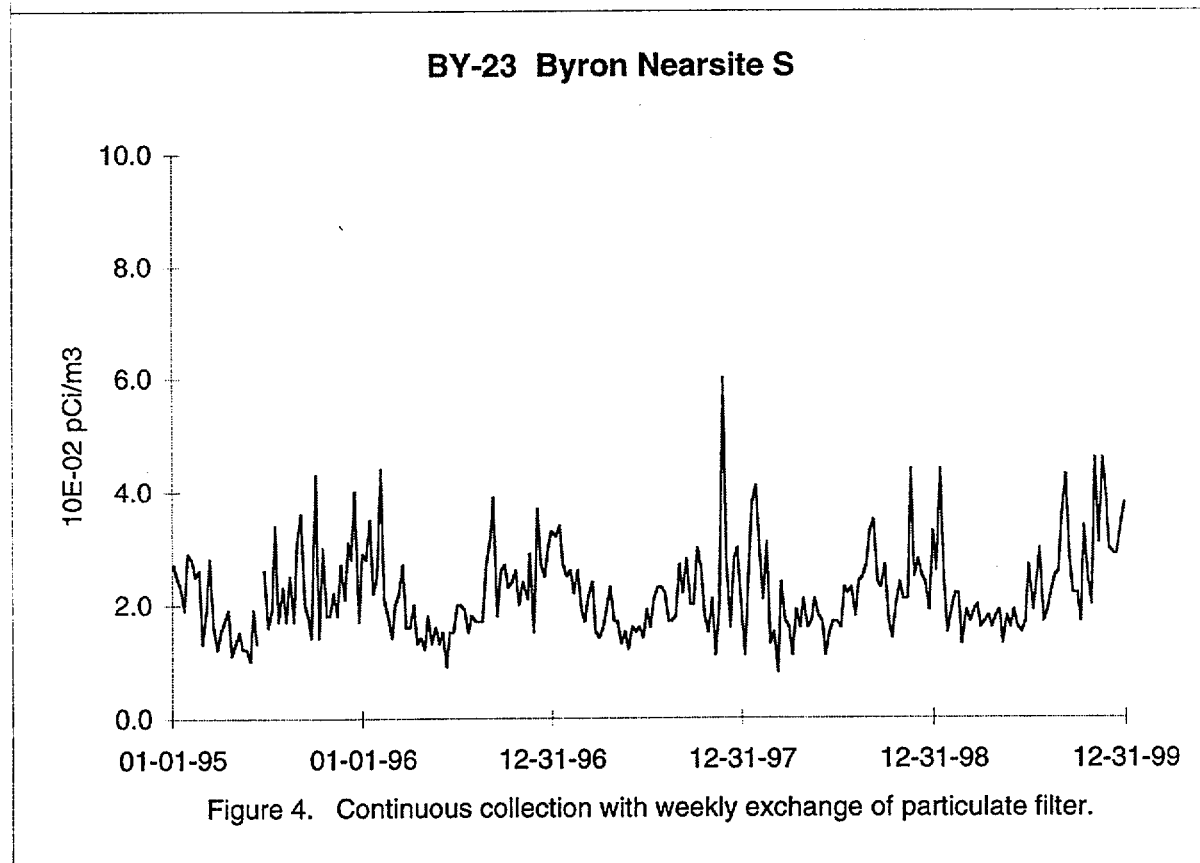
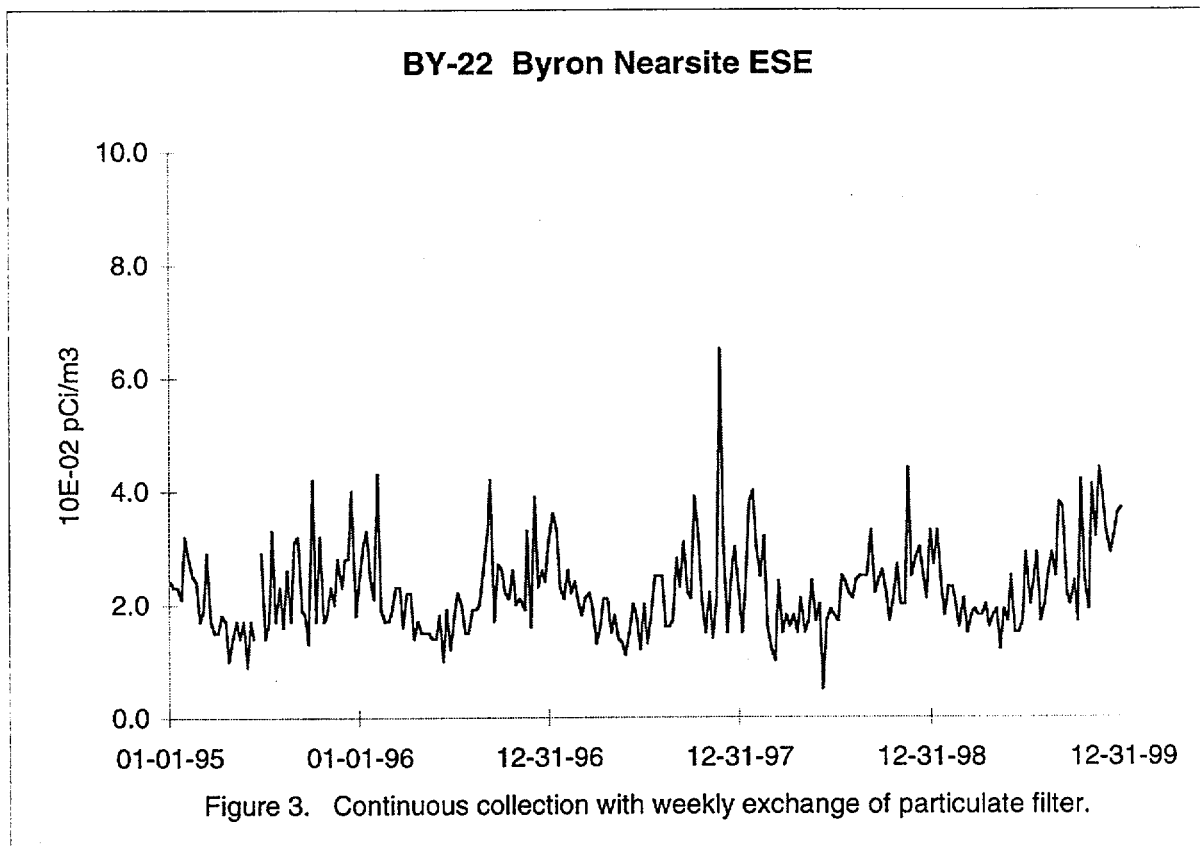
BYRON

5.0 GRAPHS OF DATA TRENDS

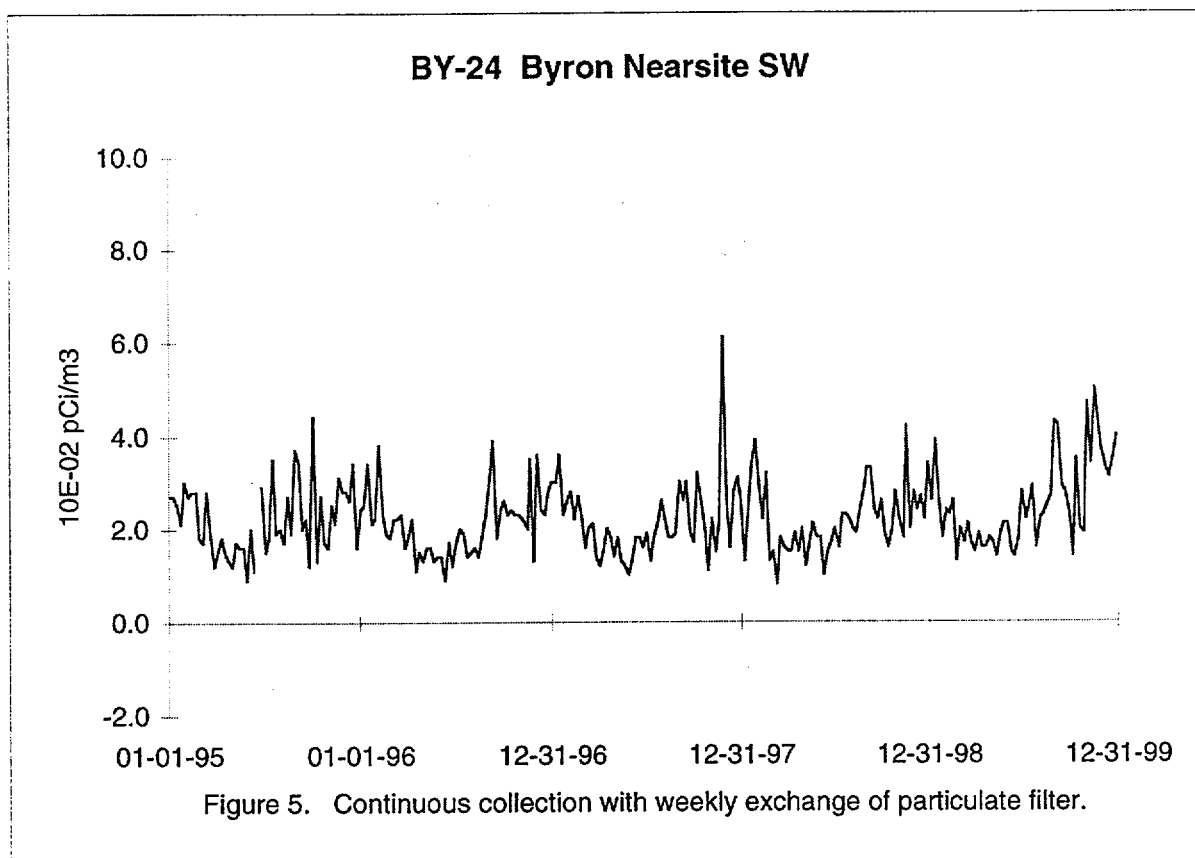
Air Particulates - Gross Beta



Air Particulates - Gross Beta



Air Particulates - Gross Beta



Surface Water - Gross Beta

BY-12 Oregon Pool of Rock River, Downstream

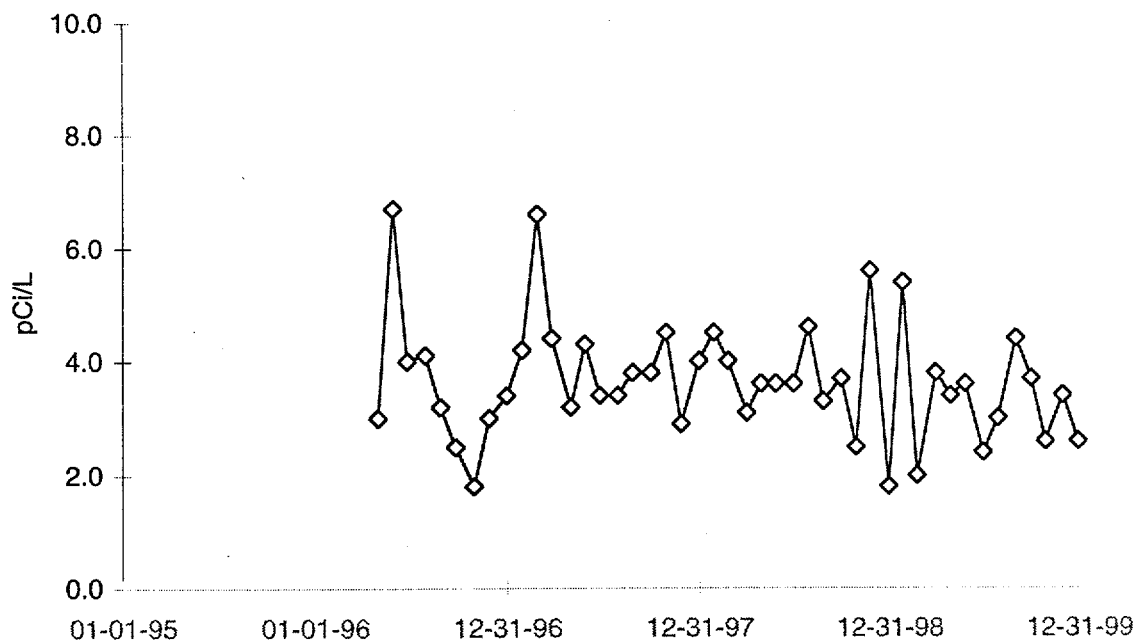


Figure 6. Monthly composites of weekly collections.

BY-29 (C) Byron, Upstream

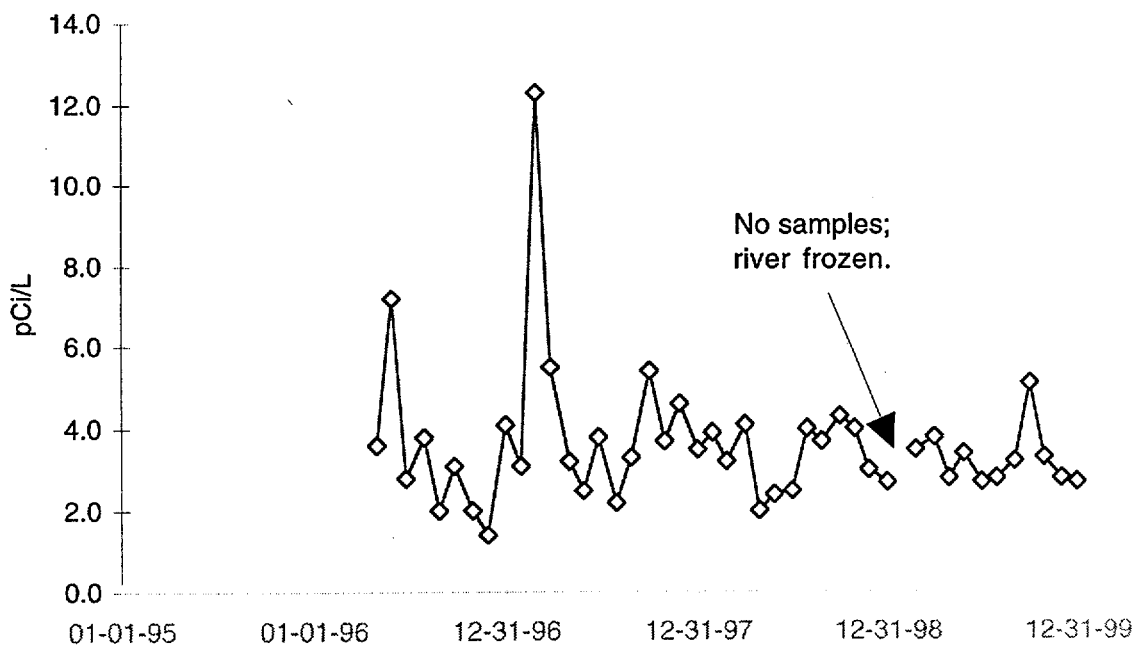
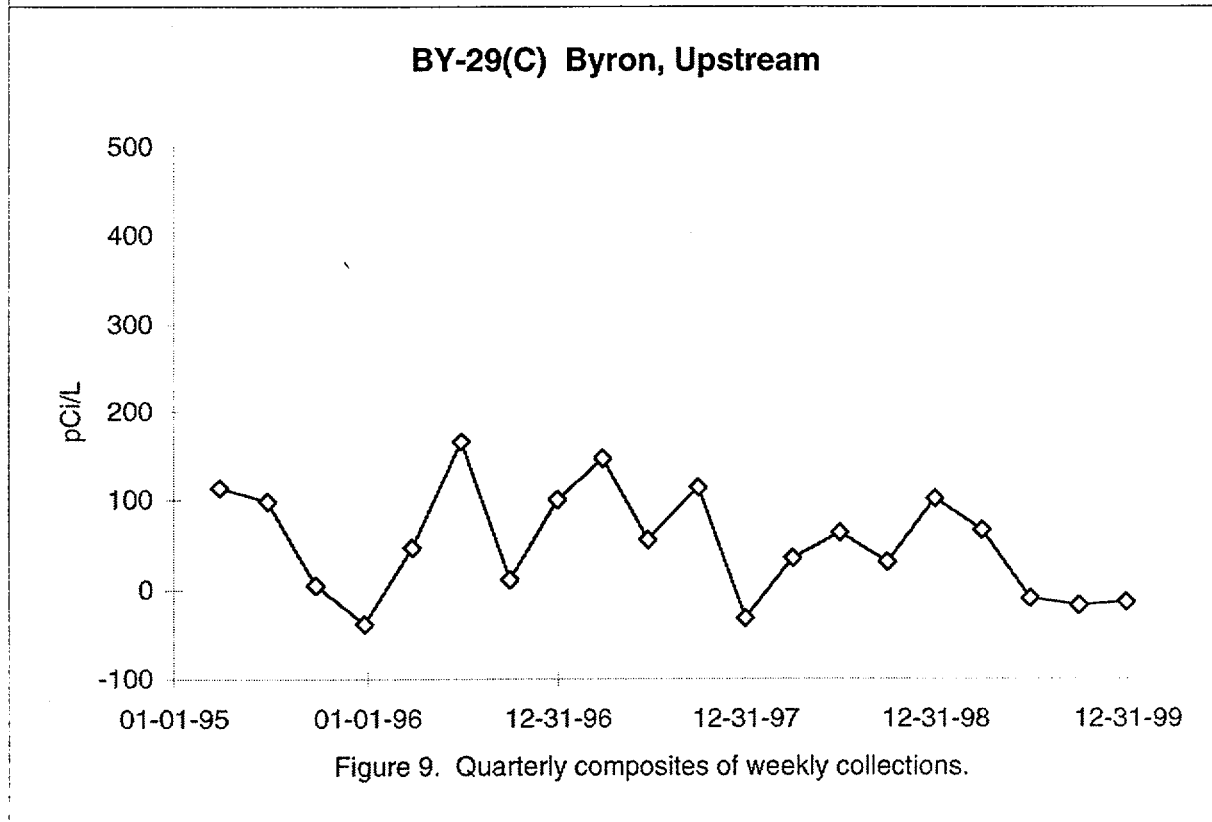
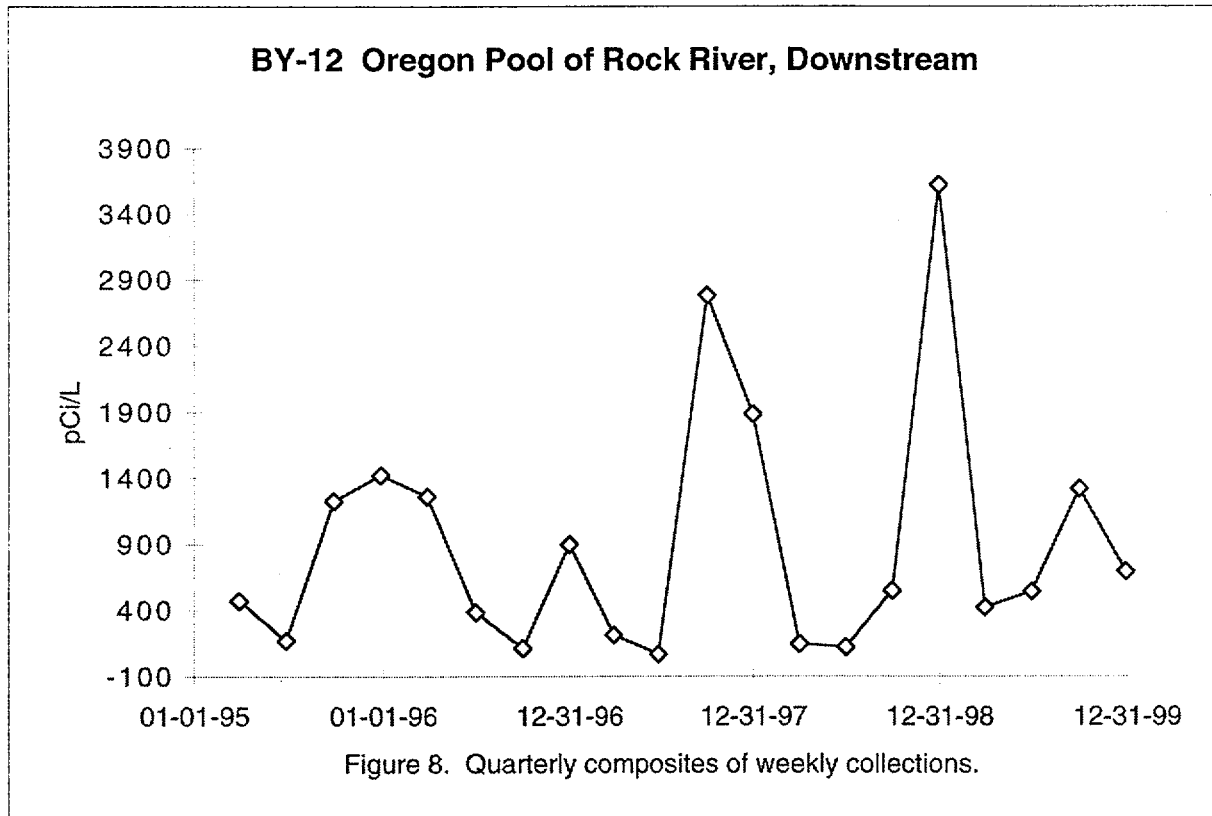
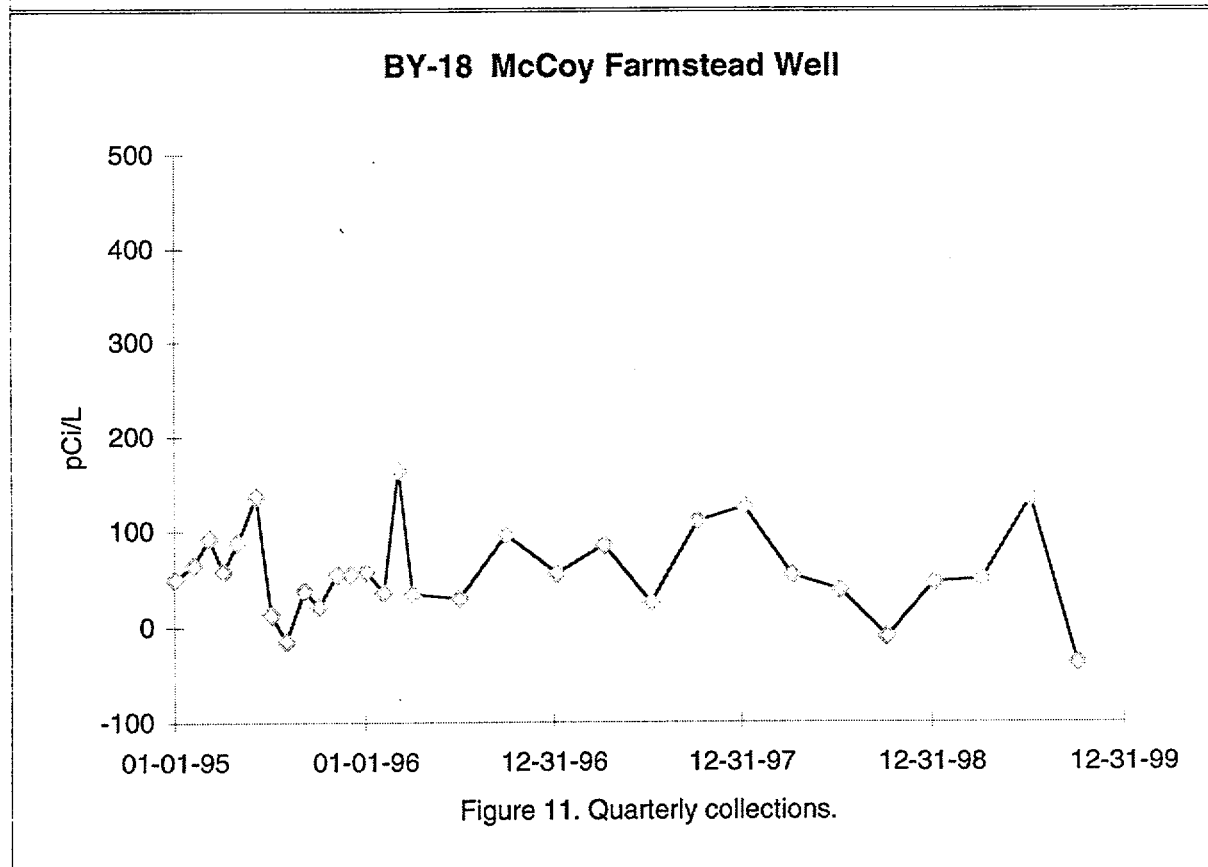
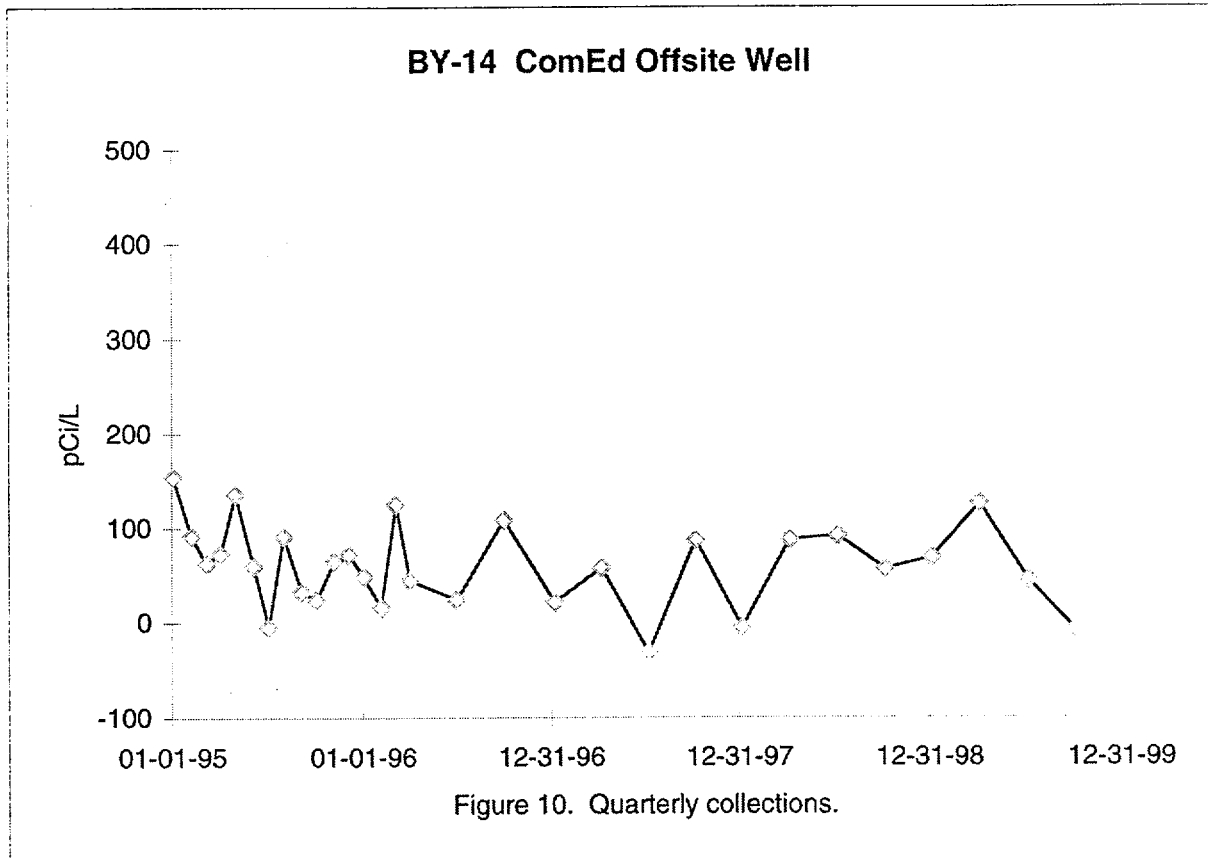


Figure 7. Monthly composites of weekly collections.

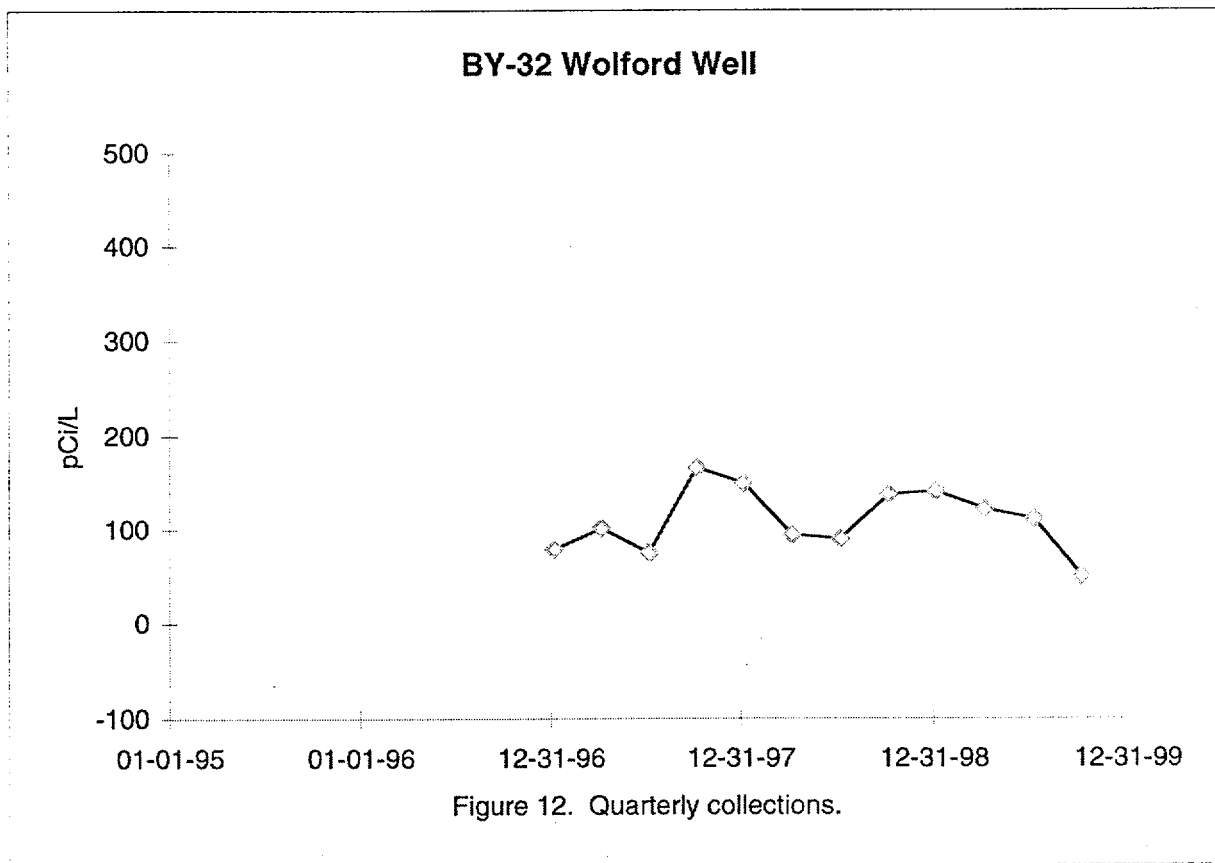
Surface Water-Tritium



Well Water-Tritium



Well Water-Tritium



APPENDIX IV
INTERLABORATORY COMPARISON PROGRAM RESULTS

NOTE: Teledyne Brown Engineering - Environmental Services, Midwest Laboratory participates in intercomparison studies administered by Environmental Resources Associates, and serves as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada. Results are reported annually in Appendix VI. Mixed analyte and Environmental Measurements Laboratory (EML) performance evaluation program results are also reported.

January, 1999 through December, 1999

Appendix IV

Interlaboratory Comparison Program Results

Teledyne Brown Engineering Environmental Services, Midwest Laboratory (formerly Teledyne Isotopes and Hazelton Environmental Services) has participated in interlaboratory comparison (crosscheck) programs since the formulation of its quality control program in December 1971. These programs are operated by agencies which supply environmental type samples (e.g., milk or water) containing concentrations of radionuclides known to the issuing agency but not to participant laboratories. The purpose of such a program is to provide an independent check on the laboratory's analytical procedures and to alert it to any possible problems.

Participant laboratories measure the concentration of specified radionuclides and report them to the issuing agency. Several months later, the agency reports the known values to the participant laboratories and specifies control limits. Results consistently higher or lower than the known values or outside the control limits indicate a need to check the instruments or procedures used.

The results in Table IV-1 were obtained through participation in the environmental sample crosscheck program for milk, water, air filters, and food samples through December 31, 1999. This program was conducted by the Environmental Resource Associates and serves to replace studies formerly conducted by the U. S. Environmental Protection Agency.

Table IV-2 lists results of the mixed analyte performance evaluation program.

Table IV-3 lists results of the Environmental Measurement Laboratory Quality Assessment Program.

Out-of-limit results are explained directly below the result.

Table IV-1. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA), comparison of ERA and Teledyne Midwest Laboratory results^a.

Lab Code	Sample Type	Date Collected	Analysis	Concentration in pCi/L ^b		
				EPA Result ^c 1s, N=1	Control Limits	TBEESML Results ± 2 Sigma ^d
STW-861	Water	Sep, 1999	Ra-226	16.5 ± 1.7	12.2 - 20.8	15.6 ± 0.3; 1.6
STW-861	Water	Sep, 1999	Ra-228	2.2 ± 0.2	1.2 - 3.1	3.2 ± 0.3; 0.5
The activity reported is the average of three separate analyses. Individual results : 2.6, 2.9 and 4.0.						
STW-861	Water	Sep, 1999	Uranium	45.4 ± 4.5	37.7 - 53.1	39.4 ± 1.2; 4.1
STW-862	Water	Nov, 1999	I-131	23.3 ± 2.3	18.1 - 28.5	23.9 ± 0.1; 2.4

^a Results obtained by Teledyne Brown Engineering Environmental Services Midwest Laboratory as a participant in the environmental sample crosscheck program operated by Environmental Resource Associates(ERA).

^b All results are in pCi/L, except for elemental potassium (K) data in milk, which are in mg/L; air filter samples, which are in pCi/Filter.

^c Unless otherwise indicated, the TBEESML results are given as the mean ± 2 standard deviations for three determinations.

^d ERA results are presented as the known values and expected laboratory precision (1s, 1 determination) and control limits as defined by ERA.

Table IV-2. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP), comparison of MAPEP and Teledyne's Midwest Laboratory results for various sample media^a.

Lab Code	Sample Type	Date Collected	Analysis	Concentration in Bq/kg ^b		
				MAPEP Result ^d 1s, N=1	Control Limits	Teledyne Results ±Standard Deviation ^c
SPW-846	WATER	Jan, 1999	Co-57	358.0	250.6 - 465.4	337.6 ± 33.8; 47.7
SPW-846	WATER	Jan, 1999	Cs-137	637.0	445.9 - 828.1	656.6 ± 65.7; 115.1
SPW-846	WATER	Jan, 1999	Fe-55	664.0	464.8 - 863.2	724.5 ± 72.5; 102.5
SPW-846	WATER	Jan, 1999	Mn-54	229.0	160.3 - 297.7	234.2 ± 23.4; 33.1
SPW-846	WATER	Jan, 1999	Pu-238	1.5	1.0 - 1.9	1.1 ± 0.1; 0.2
SPW-846	WATER	Jan, 1999	Pu-239/40	4.0	2.8 - 5.3	3.2 ± 0.3; 0.5
SPW-846	WATER	Jan, 1999	Sr-90	39.5	27.7 - 51.4	40.9 ± 4.1; 5.8
SPW-846	WATER	Jan, 1999	U-233/4	2.7	1.9 - 3.5	2.7 ± 0.3; 0.4
SPW-846	WATER	Jan, 1999	U-238	21.2	14.8 - 27.6	20.8 ± 2.1; 2.9
SPW-846	WATER	Jan, 1999	Zn-65	1,560.0	1,092.0 - 2,028.0	1,508.9 ± 150.9; 264.5
STSO-854	SOIL	Jan, 1999	Am-241	6.6	4.6 - 8.5	6.2 ± 0.7; 0.9
STSO-854	SOIL	Jan, 1999	Co-57	360.0	252.0 - 468.0	311.1 ± 3.6; 31.3
STSO-854	SOIL	Jan, 1999	Co-60	131.0	91.7 - 170.3	134.6 ± 2.2; 13.6
STSO-854	SOIL	Jan, 1999	Cs-134	752.0	526.4 - 977.6	682.4 ± 4.5; 68.4
STSO-854	SOIL	Jan, 1999	Cs-137	331.0	231.7 - 430.3	319.5 ± 3.6; 32.2
STSO-854	SOIL	Jan, 1999	K-40	652.0	456.4 - 847.6	667.0 ± 21.5; 70.1
STSO-854	SOIL	Jan, 1999	Mn-54	345.0	241.5 - 448.5	349.0 ± 7.0; 35.6
STSO-854	SOIL	Jan, 1999	Pu-238	27.5	19.3 - 35.8	25.3 ± 1.0; 2.7
STSO-854	SOIL	Jan, 1999	Pu-239/40	48.1	33.7 - 62.5	45.7 ± 1.0; 4.7
STSO-854	SOIL	Jan, 1999	U-233/4	157.0	109.9 - 204.1	139.6 ± 1.8; 14.1
STSO-854	SOIL	Jan, 1999	U-238	40.7	28.5 - 52.9	23.5 ± 0.8; 2.5
The analysis was repeated. Result of reanalysis; 29.5±6.3 Bq/kg.						
STSO-854	SOIL	Jan, 1999	Zn-65	2,840.0	1,988.0 - 3,692.0	2,697.2 ± 25.0; 270.9

^a Results obtained by Teledyne Brown Engineering Environmental Services Midwest Laboratory as a participant in the Department of Energy's Mixed Analyte Performance Evaluation Program, Idaho Operations office, Idaho Falls, Idaho.

^b All results are in Bq/kg or Bq/L as requested by the Department of Energy.

^c Unless otherwise indicated, the TBESML results are given as the mean ± 1 standard deviations for three determinations.

^d MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP.

Table IV-3. Environmental Measurements Laboratory Quality Assessment Program (EML), comparison of EML and Teledyne's Midwest Laboratory results for various sample media^a.

Lab Code	Sample Type	Date Collected	Analysis	Concentration in Bq/L ^b		Control Limits ^e
				Teledyne Result ^c	EML Result ^d	
STAF-848	Air Filter	Mar, 1999	Gr. Alpha	1.2 ± 0.0; 0.1	1.6 ± 0.2	0.6 - 1.6
STAF-848	Air Filter	Mar, 1999	Gr. Beta	2.0 ± 0.0; 0.2	1.6 ± 0.2	0.6 - 1.6
STW-850	Water	Mar, 1999	Am-241	1.2 ± 0.2; 0.2	1.1 ± 0.1	0.7 - 2.6
STW-850	Water	Mar, 1999	Co-60	54.4 ± 2.0; 8.1	51.1 ± 3.0	0.9 - 1.2
STW-850	Water	Mar, 1999	Cs-137	43.5 ± 2.0; 6.6	39.4 ± 2.4	0.9 - 1.3
STW-850	Water	Mar, 1999	Fe-55	81.5 ± 19.5; 21.1	97.4 ± 1.7	0.3 - 1.5
STW-850	Water	Mar, 1999	Gr. Alpha	1,169.0 ± 37.0; 147.3	1,090.0 ± 20.0	0.5 - 1.3
STW-850	Water	Mar, 1999	Gr. Beta	1,274.6 ± 33.3; 199.1	1,100.0 ± 40.0	0.5 - 1.3
STW-850	Water	Mar, 1999	H-3	90.3 ± 24.8; 27.7	121.1 ± 6.8	0.7 - 1.9
STW-850	Water	Mar, 1999	Ni-63	125.8 ± 6.3; 14.1	114.0 ± 10.0	0.5 - 1.5
STW-850	Water	Mar, 1999	Pu-238	0.8 ± 0.0; 0.1	0.8 ± 0.0	0.8 - 1.4
STW-850	Water	Mar, 1999	Pu-239/40	1.0 ± 0.1; 0.1	1.0 ± 0.1	0.8 - 1.4
STW-850	Water	Mar, 1999	Sr-90	3.6 ± 1.2; 1.3	4.1 ± 0.0	0.5 - 1.5
STW-850	Water	Mar, 1999	U-233/4	0.3 ± 0.1; 0.1	0.3 ± 0.0	0.8 - 1.4
STW-850	Water	Mar, 1999	U-238	0.3 ± 0.1; 0.1	0.3 ± 0.0	0.8 - 1.4
STVE-851	Vegetation	Mar, 1999	Am-241	3.4 ± 0.9; 0.9	3.5 ± 0.6	0.7 - 2.8
STVE-851	Vegetation	Mar, 1999	Cm-244	0.6 ± 0.4; 0.4	1.7 ± 0.5	0.5 - 1.7
STVE-851	Vegetation	Mar, 1999	Co-60	21.0 ± 1.9; 3.4	21.5 ± 1.0	0.6 - 1.4
STVE-851	Vegetation	Mar, 1999	Cs-137	453.9 ± 5.7; 62.0	467.0 ± 20.0	0.8 - 1.5
STVE-851	Vegetation	Mar, 1999	K-40	667.6 ± 33.7; 74.8	656.5 ± 20.0	0.8 - 1.5
STVE-851	Vegetation	Mar, 1999	Sr-90	704.8 ± 27.8; 75.8	736.1 ± 7.7	0.5 - 1.3
STSO-852	Soil	Mar, 1999	Ac-228	45.1 ± 7.4; 8.7	47.2 ± 3.0	0.5 - 1.5
STSO-852	Soil	Mar, 1999	Am-241	5.7 ± 2.4; 2.5	4.9 ± 1.0	0.5 - 2.7
STSO-852	Soil	Mar, 1999	Bi-214	67.3 ± 3.3; 7.5	69.9 ± 5.7	0.5 - 1.5
STSO-852	Soil	Mar, 1999	Cs-137	620.5 ± 5.9; 62.3	659.5 ± 25.0	0.8 - 1.3
STSO-852	Soil	Mar, 1999	K-40	355.7 ± 24.6; 43.2	362.8 ± 20.2	0.7 - 1.7
STSO-852	Soil	Mar, 1999	Pb-212	47.9 ± 3.0; 5.7	47.9 ± 2.6	0.5 - 1.5
STSO-852	Soil	Mar, 1999	Pb-214	70.1 ± 4.8; 8.5	71.0 ± 7.0	0.5 - 1.5
STSO-852	Soil	Mar, 1999	Pu-239/40	7.3 ± 1.3; 1.5	8.1 ± 1.1	0.7 - 1.9
STSO-852	Soil	Mar, 1999	Sr-90	28.3 ± 3.5; 4.5	32.4 ± 0.5	0.5 - 2.8
STSO-852	Soil	Mar, 1999	Th-234	227.4 ± 35.2; 41.9	138.0 ± 4.1	0.5 - 2.0
STSO-852	Soil	Mar, 1999	U-233/4	132.9 ± 6.9; 15.0	140.7 ± 1.2	0.4 - 1.6
STSO-852	Soil	Mar, 1999	U-238	139.4 ± 7.0; 15.6	145.0 ± 1.7	0.4 - 1.6
STAF-853	Air Filter	Mar, 1999	Am-241	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.7 - 2.4
STAF-853	Air Filter	Mar, 1999	Co-57	3.3 ± 0.1; 0.3	3.0 ± 0.1	0.6 - 1.2
STAF-853	Air Filter	Mar, 1999	Co-60	5.3 ± 0.2; 0.5	5.0 ± 0.3	0.6 - 1.4
STAF-853	Air Filter	Mar, 1999	Cs-137	7.0 ± 0.2; 0.7	6.1 ± 0.3	0.7 - 1.3
STAF-853	Air Filter	Mar, 1999	Pu-238	0.3 ± 0.0; 0.0	0.3 ± 0.0	0.6 - 1.5

Table IV-3. Environmental Measurements Laboratory Quality Assessment Program (EML), comparison of EML and Teledyne's Midwest Laboratory results for various sample media^a.

Lab Code	Sample Type	Date Collected	Analysis	Concentration in Bq/L ^b		Control Limits ^e
				Teledyne Result ^c	EML Result ^d	
STAF-853	Air Filter	Mar, 1999	Pu-239/40	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.6 - 1.5
STAF-853	Air Filter	Mar, 1999	Sb-125	4.4 ± 0.3; 0.5	3.6 ± 0.3	0.6 - 1.4
STAF-853	Air Filter	Mar, 1999	Sr-90	0.7 ± 0.2; 0.2	0.6 ± 0.0	0.7 - 2.7
STAF-853	Air Filter	Mar, 1999	U-233/4	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.8 - 3.0
STAF-853	Air Filter	Mar, 1999	U-238	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.8 - 3.0
STW-855	Water	Sep, 1999	Am-241	1.1 ± 0.2; 0.3	0.9 ± 0.1	0.8 - 1.5
STW-855	Water	Sep, 1999	Co-60	54.1 ± 1.1; 7.9	52.4 ± 2.2	0.8 - 1.2
STW-855	Water	Sep, 1999	Cs-137	77.1 ± 1.4; 11.2	76.0 ± 3.4	0.8 - 1.3
STW-855	Water	Sep, 1999	Fe-55	48.6 ± 6.8; 8.4	53.0 ± 2.0	0.4 - 1.5
STW-855	Water	Sep, 1999	U-233/4	0.5 ± 0.1; 0.1	0.4 ± 0.0	0.8 - 1.9
STW-855	Water	Sep, 1999	U-238	0.5 ± 0.1; 0.1	0.4 ± 0.0	0.8 - 1.3
Increasing the sample counting time achieved acceptable results (0.42 ± 0.07 Bq/L).						
STW-856	Water	Sep, 1999	Gr. Alpha	1,543.0 ± 44.0; 193.3	1,580.0 ± 20.0	0.6 - 1.3
STW-856	Water	Sep, 1999	Gr. Beta	1,053.0 ± 31.0; 165.1	740.0 ± 40.0	0.6 - 1.5
STW-856	Water	Sep, 1999	H-3	136.0 ± 25.0; 31.1	80.7 ± 3.7	0.7 - 1.8
STW-856	Water	Sep, 1999	Pu-238	0.8 ± 0.1; 0.1	0.8 ± 0.1	0.8 - 1.3
STW-856	Water	Sep, 1999	Pu-239/40	0.8 ± 0.1; 0.1	0.9 ± 0.1	0.8 - 1.4
STW-856	Water	Sep, 1999	Sr-90	2.2 ± 1.0; 1.0	1.7 ± 1.0	0.8 - 1.5
STW-856	Water	Sep, 1999	U-233/4	0.5 ± 0.1; 0.1	0.4 ± 0.0	0.8 - 1.4
STW-856	Water	Sep, 1999	U-238	0.5 ± 0.1; 0.1	0.4 ± 0.0	0.8 - 1.3
STSO-857	Soil	Sep, 1999	Ac-228	127.3 ± 7.5; 14.8	124.0 ± 4.8	0.8 - 1.8
STSO-857	Soil	Sep, 1999	Bi-212	107.4 ± 2.6; 11.1	140.0 ± 14.0	0.4 - 1.2
STSO-857	Soil	Sep, 1999	Bi-214	90.1 ± 4.2; 9.9	69.5 ± 1.8	0.8 - 1.4
STSO-857	Soil	Sep, 1999	Cs-137	195.9 ± 4.0; 20.0	204.0 ± 5.0	0.8 - 1.3
STSO-857	Soil	Sep, 1999	K-40	744.7 ± 37.7; 83.5	780.0 ± 27.0	0.8 - 1.5
STSO-857	Soil	Sep, 1999	Pb-212	123.4 ± 3.7; 12.9	127.0 ± 4.8	0.7 - 1.3
STSO-857	Soil	Sep, 1999	Pb-214	96.5 ± 5.0; 10.9	72.0 ± 0.4	0.7 - 1.5
STSO-857	Soil	Sep, 1999	Sr-90	13.0 ± 1.4; 1.9	13.0 ± 0.5	0.6 - 3.7
STSO-857	Soil	Sep, 1999	Th-234	298.7 ± 24.6; 38.7	198.0 ± 5.6	0.6 - 1.9
STSO-857	Soil	Sep, 1999	U-233/4	184.4 ± 8.5; 20.3	190.0 ± 5.2	0.5 - 1.3
STSO-857	Soil	Sep, 1999	U-238	184.8 ± 8.5; 20.3	190.0 ± 5.2	0.5 - 1.3
STVE-858	Vegetation	Sep, 1999	Am-241	3.3 ± 0.9; 0.9	2.9 ± 0.2	0.7 - 2.7
STVE-858	Vegetation	Sep, 1999	Cm-244	2.1 ± 0.9; 0.9	1.6 ± 0.4	0.5 - 1.7
STVE-858	Vegetation	Sep, 1999	Co-60	17.6 ± 1.9; 3.1	17.6 ± 1.0	0.7 - 1.5
STVE-858	Vegetation	Sep, 1999	Cs-137	414.6 ± 5.7; 56.7	440.0 ± 20.0	0.8 - 1.4
STVE-858	Vegetation	Sep, 1999	K-40	502.8 ± 34.7; 61.1	513.0 ± 20.0	0.8 - 1.4
STVE-858	Vegetation	Sep, 1999	Pu-239/40	4.1 ± 1.0; 1.1	4.3 ± 0.5	0.7 - 1.6
STAP-859	Air Filter	Sep, 1999	Am-241	0.1 ± 0.1; 0.1	0.1 ± 0.0	0.7 - 2.6

Table IV-3. Environmental Measurements Laboratory Quality Assessment Program (EML), comparison of EML and Teledyne's Midwest Laboratory results for various sample media^a.

Lab Code	Sample Type	Date Collected	Analysis	Concentration in Bq/L ^b		Control Limits ^e
				Teledyne Result ^c	EML Result ^d	
STAP-859	Air Filter	Sep, 1999	Co-57	8.1 ± 0.1; 0.8	7.7 ± 0.0	0.7 - 1.4
STAP-859	Air Filter	Sep, 1999	Co-60	6.7 ± 0.1; 0.7	6.4 ± 0.4	0.8 - 1.3
STAP-859	Air Filter	Sep, 1999	Cs-137	7.1 ± 0.2; 0.7	6.4 ± 0.4	0.7 - 1.4
STAP-859	Air Filter	Sep, 1999	Mn-54	8.8 ± 0.2; 0.9	7.9 ± 0.5	0.8 - 1.4
STAP-859	Air Filter	Sep, 1999	Pu-238	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.7 - 1.4
STAP-859	Air Filter	Sep, 1999	Pu-239/40	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.8 - 1.4
Insufficient sample volume (15 ml.) for accurate analysis.						
STAP-859	Air Filter	Sep, 1999	Ru-106	5.9 ± 0.8; 1.0	5.5 ± 1.8	0.6 - 1.3
STAP-859	Air Filter	Sep, 1999	Sr-90	0.6 ± 0.2; 0.2	0.3 ± 0.0	0.6 - 1.9
STAP-859	Air Filter	Sep, 1999	U-233/4	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.8 - 1.9
STAP-859	Air Filter	Sep, 1999	U-238	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.8 - 2.6
STAP-860	Air Filter	Sep, 1999	Gr. Alpha	3.2 ± 0.1; 0.3	2.8 ± 0.3	0.5 - 1.6
STAP-860	Air Filter	Sep, 1999	Gr. Beta	3.7 ± 0.1; 0.4	2.7 ± 0.3	0.7 - 1.7

^a The Environmental Measurements Laboratory provides the following nuclear species : Air Filters, Soil, Tissue, Vegetation and Water. Teledyne does not participate in the Tissue program.

^b Results are reported in Bq/L⁻¹ with the following exceptions: Air Filter results are reported in Bq/Filter⁻¹, Soil results are reported in Bq/Kg⁻¹, Vegetation results are reported in Bq/Kg⁻¹. The results of elemental Uranium are reported in ug/filter⁻¹, g, or ml.

^c Teledyne results are reported as the mean of three determinations ± standard deviation; total promulgated uncertainty.

^d The EML result listed is the mean of replicate determinations for each nuclide ± the standard error of the mean.

^e The control limits are reported by EML as the ratio of Reported Value / EML value and are established from percentiles of historic data distributions (1982-1992). The evaluation of this historic data and the development of the control limits is presented in DOE report EML-564.