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1996 Annual Environmental Operating Monitoring Report (REMP)

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Subject: Braidwood Station Annual Radiological Environmental Operating Report, Docket Numbers STN 50-456 and STN 50-457

Enclosed is the Braidwood Station Annual Radiological Environmental Operating Report. This report contains the results of the radiological environmental and meteorological monitoring programs for the 1996 calendar year. The Radioactive Effluent Release Report was submitted under separate cover.

Two copies of the report are provided for your use.

Sincerely yours,

Timothy J. Tulon
Station Manager
Braidwood Nuclear Generating Station

Enclosure 036016

cc: George Dick, Braidwood Station Project Manager, U.S. NRC
A. Bill Beach, Regional Administrator, NRC Region III (2 copies)
Tom Kozak, Chief, Plant Support Branch 2, NRC Region III
Charles Phillips, NRC Senior Resident Inspector, Braidwood Station

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BRAIDWOOD STATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

1996

APRIL 1997

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INTRODUCTION

Braidwood Station, a two-unit PWR station, is located in Will County, Illinois, fifteen (15) miles south-southwest of Joliet, Illinois. Each reactor is designed to have a capacity of 1120 MW net. Unit No. 1 went critical on May 29, 1987, and unit No. 2 went critical on March 8, 1988. The station has been designed to keep releases to the environment at levels below those specified in the regulations.

Liquid effluents from Braidwood Station are released to the Kankakee 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 daily grab samples 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, and particulate radioactivity in offsite areas are calculated using effluent and meteorological data.

Environmental monitoring is conducted by sampling at indicator and control (background) locations in the vicinity of the Braidwood Station to measure changes in radiation or radioactivity levels that may be attributable to station operations. If significant changes attributable to Braidwood 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 most critical pathways at this site; however, an environmental monitoring program is conducted which includes these and other pathways.

ComEd is in the process of implementing a Uniform Radiological Environmental Monitoring Program, referred to as UREMP, among the ComEd nuclear stations. This program includes generic requirements pertaining to environmental sampling and analysis, an annual land use census, an interlaboratory comparison program and environmental reports. Braidwood Station implemented UREMP in November of 1995.

SUMMARY

Gaseous and liquid effluents for the period contributed to only a small fraction of the Braidwood Station Technical Specification/Standards limits. Calculations of environmental concentrations based on effluent, Kankakee River flow, and meteorological data for the period indicate that consumption by the public of radionuclides attributable to the Braidwood Station does not exceed the regulatory limits. Radiation exposure from radionuclides released to the atmosphere represented the critical pathway for the period with a maximum individual total dose estimated to be 1.11E-04 mrem for the year, where a shielding and occupancy factor of 0.7 is assumed. The assessment of radiation doses is performed in accordance with the ComEd Offsite Dose Calculation Manual (ODCM). The results of analysis confirm that the station is operating in compliance with 10CFR50 Appendix I, 10CFR20 and 40CFR190.

1.0 EFFLUENTS

1.1 Gaseous Effluents to the Atmosphere

Measured concentrations of r le gases, radioiodine and particulate radioactivity released to the atmosphere during the year are listed in Table 1.1-1.

A total of 1.51E+01 curies of fission and activation gases was released with a maximum quarterly average release rate of 1.23E+00 µCi/sec.

A total of 2.42E-04 curies of I-131 were released during the year with a maximum quarterly average release rate of 3.03E-05 µCi/sec.

A total of 6.20E-06 curies beta-gamma emitters were released as airborne particulate matter with a maximum quarterly average release rate of 6.72 E-07 µCi/sec. Alpha-emitting radionuclides were not measurable.

A total of 1.40E+01 curies of tritium was released with a maximum quarterly average release rate of 8.55E-01 µCi/sec.

1.2 Liquids Released to Kankakee River

A total of 2.24E+07 liters of radioactive liquid waste (prior to dilution) containing 1.12E+00 curies (excluding tritium, noble gases, and alpha) were discharged from the station. These wastes were released at a maximum quarterly average concentration of 1.05E-07 µCi/ml. A total of 0.00E+00 curies of alpha radioactivity and 1.[illegible]E+03 curies of tritium were released from the station. Monthly release estimates and principal radionuclides in liquid effluents are given in Table 1.2-1.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped by truck to Barnwell, South Carolina; Oak Ridge, Tennessee; Memphis Tennessee and Wampum, Pennsylvania. The record of waste shipments is summarized in Table 2.0-1.

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 total 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 for the year are shown in Figure 3.1-1. Based on measured effluents and average meteorological data, the maximum dose to an individual would be 1.11E-04 mrem for the year, with an occupancy or

shielding factor of 0.7 included, and based on measured effluents and concurrent meteorological data would be 9.85E-05 mrem. The maximum gamma air dose was 1.51E-04 mrad based on measured effluents and average meteorological data and 1.81E-04 mrad based on concurrent meteorological data.

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 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 was 2.52E-04 mrem. The maximum offsite beta air dose for the year was 3.43E-04 mrem.

The air concentrations of radioactive noble gases at the offsite receptor locations are given in Figure 3.1-2.

3.1.2 Radioactive Iodine

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

3.1.2.1 Iodine-131 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 annual offsite concentration is estimated to be 3.85E-05 pCi/m^3 for the year.

3.1.2.2 Dose to Infant's Thyroid

The hypothetical thyroid dose to an infant 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 infant's thyroid dose was 2.56E-03 mrem during the year (Table 3.1-1).

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 9.91E-07 pCi/m^3.

3.2 Liquid Effluent Pathways

The three principal pathways through the aquatic environment for potential doses to man from liquid waste are the ingestion of potable water, eating of aquatic foods, and exposure while walking 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 tracts, thyroid, bone, 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 6.30E-02 mrem and no organ dose exceeded 1.29E-01 mrem (Table 3.2-1).

3.3 Assessment of Dose to Member of Public

During the period January to December, 1996, Braidwood Station did not exceed the following limits as shown in Table 3.1-1 and Table 3.2-1 (based on annual average meteorological data), Figure 3.1-1 (based on concurrent meteorological data), and Table 3.3-1:

- The RETS limits on dose or dose commitment to an individual 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).

- 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 mrads for gamma radiation or 20 mrad for beta radiation during any calendar year).

- The RETS limits on dose to any individual due to iodine-131, iodine-133, tritium, and radionuclides in particulate form with half-lives greater than eight 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 203' level and wind speed class by atmospheric stability class determined from the temperature difference between 199' and 30' levels. Data recovery for these measurements was about 99.9% during 1996.

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

5.0 ENVIRONMENTAL MONITORING

Table 5.0-1 provides an outline of the Radiological Environmental Monitoring Program (REMP) as required in current Technical Standards. Table 5.0-2 lists the sampling locations, sampling collection frequencies and analyses performed. Sampling locations are shown in Figures 5.0-1 to 5.0-4. Concentrations of radioactivity in various media are summarized in Tables 5.0-3 through 5.0-6. Tables listing all data are presented in Appendix III.

Specific findings for various environmental media are discussed below.

5.1 Gamma Radiation

External radiation dose was measured using $CaSO_4$:Tm thermoluminescent dosimeters (TLDs). Each location consists of 2 TLD sets. The quarterly average external radiation dose for the year was 13.3 mR at the indicator locations and 13.3 mR at the control locations. TLD results are listed in Section 4.0 of Appendix III and locations are shown in Figures 5.0-1 and 5.0-2.

Quarterly external radiation dose at seven air sampling locations averaged 13.1 mR and was similar to levels measured in 1985 (12.0 mR), 1986 (12.6 mR), 1987 (14.4 mR), 1988 (13.6 mR), 1989 (13.5 mR), 1990 (14.6 mR), 1991 (14.2 mR), 1992 (13.9 mR) 1993 (14.1 mR), 1994 (13.7 mR) and 1995 (12.3 mR). These differences are not statistically significant.

5.2 Airborne I-131 and Particulate Radioactivity

Airborne I-131 concentration remained below the LLD of 0.07 pCi/m^3 throughout the year in all samples.

Gross beta concentrations ranged from 0.007 to 0.044 pCi/m^3 and averaged 0.022 pCi/m^3 and was slightly lower than the average concentration in 1985 (0.028 pCi/m^3), 1986 (0.034 pCi/m^3, except for the period from May 16 through June 6 when it was influenced by the nuclear reactor accident at Chernobyl), 1987 (0.027 pCi/m^3), 1988 (0.031 pCi/m^3), 1989 (0.028 pCi/m^3), 1990 (0.024 pCi/m^3), and similar to 1991 (0.022 pCi/m^3), 1992 (0.022 pCi/m^3), 1993 (0.022 pCi/m^3), 1994 (0.021 pCi/m^3) and 1995 (.0.023 pCi/m^3).

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

5.3 Terrestrial Radioactivity

Vegetables were collected in August and September and analyzed for gamma-emitting nuclides. In addition, green leafy vegetables were analyzed for I-131. I-131 and gamma-emitting nuclides were below the limits of detection indicating that there was no measurable amount of radioactivity attributable to the station releases.

5.4 Aquatic Radioactivity

Well water was collected quarterly from one nearsite well (BD-13) and four farsite wells (BD-34, BD-35, BD-36, BD-37) and was analyzed for tritium and gamma-emitting nuclides. Tritium levels at BD-13, BD-35 and BD-37 remained below the LLD level of 200 pCi/L. Tritium activity at BD-34 averaged 517 pCi/L. with a first quarter

high of 589 pCi/L. Tritium levels at BD-36 averaged 574 pCi/L. with a second quarter high of 696 pCi/L. All gamma-emitters were below the limits of detection.

Weekly surface water samples from BD-10 (Kankakee River, Downstream) and BD-25 (Kankakee River, Upstream) were composited monthly and analyzed for gamma-emitting nuclides and gross beta activity. Quarterly composites were analyzed for tritium. Public water samples from BD-22 (Wilmington) were also composited monthly and analyzed for gamma-emitting nuclides, gross beta and tritium.

Cs-134 and Cs-137 concentrations were below the LLD level of 15 pCi/L and 18 pCi/L, respectively, in all samples.

Tritium concentrations at BD-25 were below the LLD level of 200 pCi/L. Tritium activity in samples from BD-10 averaged 486 pCi/L. with a third quarter high of 801 pCi/L.

Tritium concentrations in public water samples (BD-22) averaged 2,325 pCi/L. with a range of 214-5,111 pCi/L. These values are less than the reportable level of 20,000 pCi/L for drinking water.

Sediment samples were collected twice a year from one indicator location (BD-10) and analyzed for gamma-emitters. Cs-134 concentration was below the lower limit of detection (0.15 pCi/g dry weight) in both collections. Cs-137 activity was below the lower limit of detection (0.18 pCi/g dry weight) in the fourth quarter sample; the second quarter sample had a Cs-137 level of 0.22 pCi/g. dryweight.

Levels of gamma radioactivity in fish were measured and found in all samples to be below the lower limit of detection for the program.

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.

I-131 concentration was below the LLD level of 0.5 (May-October) and 5.0 (November-April) pCi/L in all samples.

Cs-134 , Cs-137 and Ba/La-140 were below the LLD level of 15, 18 and 15 pCi/L, respectively.

5.6 Sample Collections

All samples were collected as scheduled.

5.7 Program Modifications

In March of 1996 the Goodwin Dairy (BD-24) went out of business and was replaced by the Biros Farm (BD-18) in April of 1996.

6.0 ANALYTICAL PROCEDURES

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 V of the report for the period January - December 1993.

7.0 MILCH ANIMALS AND NEAREST LIVESTOCK CENSUS

A census of milch animals and nearest cattle was 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 A. Lewis on August 21, 1996.

Results of the milch animal and nearest cattle census are presented On page 40 and 41 of Appendix III.

8.0 NEAREST RESIDENCE CENSUS

A census of the nearest residences within a 6.2-mile radius was conducted by A. Lewis on August 19, 1996.

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

9.0 ERRATA DATA

Errata data is presented in Appendix IV.

10.0 INTERLABORATORY COMPARISON PROGRAM RESULTS

Teledyne's Interlaboratory Comparison Program Results are presented in Appendix V

APPENDIX I

DATA TABLES AND FIGURES

TABLE 1.1-1

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 1996
GAS RELEASES
UNIT 1 (Docket Number 50-456)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
A. Fission and Activation Gas Releases						
1. Total Release Activity	Ci	9.70E+00	3.78E+00	1.82E-01	1.89E-01	1.39E+01
2. Average Release Rate	uCi/sec	1.23E+00	4.79E-01	2.31E-02	2.40E-02	4.41E-01
B. Iodine Releases						
1. Total I-131 Activity	Ci	<LLD	6.62E-07	<LLD	2.39E-04	2.40E-04
2. Average Release Rate	uCi/sec	<LLD	8.40E-08	<LLD	3.03E-05	7.61E-06
C. Particulate (> 8 day half-life) Releases						
1. Gross Activity	Ci	<LLD	<LLD	<LLD	5.30E-06	5.30E-06
2. Average Release Rate	uCi/sec	<LLD	<LLD	<LLD	6.72E-07	1.68E-07
3. Gross Alpha Activity	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
D. Tritium Releases						
1. Total Release Activity	Ci	1.10E-01	6.51E-02	4.50E+00	6.74E+00	1.14E+01
2. Average Release Rate	uCi/sec	1.40E-02	8.26E-03	5.71E-01	8.55E-01	3.61E-01
E. Sum of Iodine, Particulate (> 8 day half-life), and Tritium Releases.						
1. Total Release Activity	Ci	1.10E-01	6.51E-02	4.50E+00	6.74E+00	1.14E+01

TABLE 1.1-1 (continued)

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 1996
GAS RELEASES
UNIT 2 (Docket Number 50-457)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
A. Fission and Activation Gas Releases						
1. Total Release Activity	Ci	5.45E-01	6.39E-02	1.66E-01	4.48E-01	1.22E+00
2. Average Release Rate	uCi/sec	6.91E-02	8.11E-03	2.11E-02	5.68E-02	3.87E-02
B. Iodine Releases						
1. Total I-131 Activity	Ci	1.38E-06	3.40E-07	<LLD	7.16E-07	2.44E-06
2. Average Release Rate	uCi/sec	1.75E-07	4.31E-08	<LLD	9.08E-08	7.74E-08
C. Particulate (> 8 day half-life) Releases						
1. Gross Activity	Ci	<LLD	<LLD	<LLD	8.99E-07	8.99E-07
2. Average Release Rate	uCi/sec	<LLD	<LLD	<LLD	1.14E-07	2.85E-08
3. Gross Alpha Activity	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
D. Tritium Releases						
1. Total Release Activity	Ci	1.66E+00	3.14E-01	8.48E-02	5.13E-01	2.57E+00
2. Average Release Rate	uCi/sec	2.11E-01	3.98E-02	1.08E-02	6.51E-02	8.15E-02
E. Sum of Iodine, Particulate (> 8 day half-life), and Tritium Releases.						
1. Total Release Activity	Ci	1.66E+00	3.14E-01	8.48E-02	5.13E-01	2.57E+00

TABLE 1.2-1

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 1996
LIQUID RELEASES
UNIT 1 (Docket Number 50-456)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
A. Fission and Activation Products						
1. Total Activity Released	Ci	1.59E-01	1.66E-01	1.40E-02	2.21E-01	5.60E-01
2. Average Concentration Released	uCi/ml	6.40E-08	8.17E-08	9.25E-09	1.05E-07	6.89E-08
B. Tritium						
1. Total Activity Released	Ci	1.66E+02	9.35E+01	1.67E+02	2.55E+02	6.82E+02
2. Average Concentration Released	uCi/ml	6.69E-05	4.60E-05	1.10E-04	1.21E-04	8.39E-05
3. % of Limit (1E-3 uCi/ml)	%	6.69E+00	4.60E+00	1.10E+01	1.21E+01	8.39E+00
C. Dissolved Noble Gases						
1. Total Activity Released	Ci	8.35E-04	6.10E-05	1.12E-04	3.08E-04	1.32E-03
2. Average Concentration Released	uCi/ml	3.36E-10	3.00E-11	7.40E-11	1.46E-10	1.62E-10
3. % of Limit (2E-4 uCi/ml)	%	1.68E-04	1.50E-05	3.70E-05	7.30E-05	8.10E-05
D. Gross Alpha						
1. Total Activity Released	Ci	<LLD	<LLD	<LLD	<LLD	0.00E+00
2. Average Concentration Released	uCi/ml	<LLD	<LLD	<LLD	<LLD	0.00E+00
E. Volume of Releases						
1. Volume of Liquid Waste to Discharge	liters	2.92E+06	2.25E+06	3.65E+06	2.41E+06	1.12E+07
2. Volume of Dilution Water	liters	2.48E+09	2.03E+09	1.51E+09	2.00E+09	8.12E+09

TABLE 1.2-1 (continued)

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 1996
LIQUID RELEASES
UNIT 2 (Docket Number 50-457)
SUMMATION OF ALL RELEASES

	Units	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
A. Fission and Activation Products						
1. Total Activity Released	Ci	1.59E-01	1.66E-01	1.40E-02	2.21E-01	5.68E-01
2. Average Concentration Released	uCi/ml	6.40E-08	8.12E-08	9.25E-09	1.05E-07	6.89E-08
B. Tritium						
1. Total Activity Released	Ci	1.66E+02	9.35E+01	1.67E+02	2.55E+02	6.82E+02
2. Average Concentration Released	uCi/ml	6.69E-05	4.60E-05	1.10E-04	1.21E-04	8.39E-05
3. % of Limit (3E-3 uCi/ml)	%	6.69E+00	4.60E+00	1.10E+01	1.21E+01	8.39E+00
C. Dissolved Noble Gases						
1. Total Activity Released	Ci	8.35E-04	6.10E-05	1.12E-04	3.08E-04	1.32E-03
2. Average Concentration Released	uCi/ml	3.36E-10	3.00E-11	7.40E-11	1.46E-10	1.62E-10
3. % of Limit (2E-4 uCi/ml)	%	1.68E-04	1.50E-05	3.70E-05	7.30E-05	8.10E-05
D. Gross Alpha						
1. Total Activity Released	Ci	<LLD	<LLD	<LLD	<LLD	0.00E+00
2. Average Concentration Released	uCi/ml	<LLD	<LLD	<LLD	<LLD	0.00E-00
E. Volume of Releases						
1. Volume of Liquid Waste to Discharge	liters	2.92E+06	2.25E+06	3.65E+06	2.41E+06	1.12E+07
2. Volume of Dilution Water	liters	2.48E+09	2.03E+09	1.51E+09	2.10E+09	8.12E+09

TABLE 2.0-1
BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 1996
SOLID RADIOACTIVE WASTE
UNIT 1 AND 2 COMBINED (Docket Number 50-456 and 50-457)

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL

1. Types of Waste

			1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Year Total
a	PROCESS WASTE	Total (m3)	5.65E+00	1.69E+01	1.13E+01	5.65E+00	3.95E+01
		Total(Ci)	5.74E+00	4.59E+01	1.29E+02	7.59E-01	1.82E+02
		Est. Total Error %	2.93%	3.29%	3.67%	2.69%	3.25%
b.	DRY ACTIVE WASTE	Total (m3)	1.06E+02	1.66E+02	0	0	2.72E+02
		Total (Ci)	1.23E-01	1.02E+00	0	0	1.14E+00
		Est. Total Error %	3.28%	3.22%	N/A	N/A	3.23%
c.	OTHER, RTD PIPES	Total (m3)	0	1.45E+02	0	0	1.45E+02
		Total (Ci)	0	1.28E+01	0	0	1.28E+01
		Est. Total Error %	N/A	2.17%	N/A	N/A	2.17%

NOTE: Volume of Dry Active Waste is before vendor volume reduction.

2. Estimate of major nuclide composition (by type of waste)

a

PROCESS WASTE		1st Qtr Ci	2nd Qtr Ci	3rd Qtr Ci	4th Qtr Ci	Year Total Ci	% Composition
	*Fe-55	2.34E+00	1.41E+01	8.41E+01	2.60E-01	1.01E+02	55.54%
	Co-58	1.96E+00	2.39E+01	4.73E+00	1.48E-01	3.07E+01	16.94%
	Co-60	4.99E-01	2.99E+00	2.07E+01	5.84E-02	2.42E+01	13.33%
	*Ni-63	3.37E-01	2.02E+00	1.48E+01	3.90E-02	1.72E+01	9.46%
	Mn-54	9.07E-02	2.55E-01	1.33E+00	6.83E-03	1.68E+00	0.93%
	H-3	1.15E-01	4.25E-01	5.90E-01	2.21E-01	1.35E+00	0.74%
	Sb-125	2.45E-02	3.06E-01	7.08E-01	1.97E-03	1.04E+00	0.57%
	*C-14	2.04E-02	1.22E-01	8.77E-01	2.30E-03	1.02E+00	0.56%
	Cs-137	3.38E-02	4.74E-01	3.19E-01	7.63E-03	8.35E-01	0.46%
	Nb-95	1.58E-01	3.14E-01	4.86E-02	4.49E-03	5.25E-01	0.29%
	Zr-95	7.92E-02	1.48E-01	2.22E-01	2.05E-03	4.51E-01	0.25%
	Cr-51	2.31E-02	3.21E-01	4.51E-02	1.26E-03	3.91E-01	0.22%
	Co-57	1.10E-02	2.03E-01	9.71E-02	1.39E-03	3.12E-01	0.17%
	Ag-110m	0	1.57E-02	2.93E-01	2.85E-04	3.09E-01	0.17%
	Cs-134	1.78E-02	2.03E-01	8.11E-02	1.84E-03	3.04E-01	0.17%
	Zn-65	7.52E-03	0	1.11E-01	1.00E-03	1.20E-01	0.07%

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TABLE 2.0-1 (continued)

b.

DRY ACTIVE WASTE		1st Qtr Ci	2nd Qtr Ci	3rd Qtr Ci	4th Qtr Ci	Year Total Ci	% Composition
	*Fe-55	7.12E-02	5.78E-01	0	0	6.49E-01	56.90%
	Co-60	1.53E-02	1.24E-01	0	0	1.39E-01	12.17%
	Co-58	1.21E-02	1.08E-01	0	0	1.20E-01	10.52%
	*Ni-63	1.04E-02	8.39E-02	0	0	9.43E-02	8.27%
	Cr-51	3.73E-03	3.60E-02	0	0	3.97E-02	3.48%
	Nb-95	3.32E-03	2.88E-02	0	0	3.21E-02	2.82%
	Zr-95	2.58E-03	2.32E-02	0	0	2.58E-02	2.26%
	Mn-54	2.79E-03	2.29E-02	0	0	2.57E-02	2.25%
	Cs-137	7.79E-04	7.15E-03	0	0	7.93E-03	0.70%
	*C-14	6.38E-04	5.08E-03	0	0	5.71E-03	0.50%
	Co-57	1.42E-04	1.18E-03	0	0	1.32E-03	0.12%

c.

OTHER, RTD PIPES		1st Qtr Ci	2nd Qtr Ci	3rd Qtr Ci	4th Qtr Ci	Year Total Ci	% Composition
	*Fe-55	0	3.10E+00	0	0	3.10E+00	24.27%
	Co-58	0	3.10E+00	0	0	3.10E+00	24.24%
	Cs-137	0	2.15E+00	0	0	2.15E+00	16.80%
	Cr-51	0	1.09E+00	0	0	1.09E+00	8.55%
	Co-60	0	6.66E-01	0	0	6.66E-01	5.20%
	Cs-134	0	6.48E-01	0	0	6.48E-01	5.06%
	Nb-95	0	5.43E-01	0	0	5.43E-01	4.24%
	*Ni-63	0	4.54E-01	0	0	4.54E-01	3.55%
	Zr-95	0	4.07E-01	0	0	4.07E-01	3.18%
	Mn-54	0	1.89E-01	0	0	1.89E-01	1.48%
	Fe-59	0	1.55E-01	0	0	1.55E-01	1.22%
	Sb-125	0	1.08E-01	0	0	1.08E-01	0.85%
	Sn-113	0	9.47E-02	0	0	9.47E-02	0.74%
	Co-57	0	4.19E-02	0	0	4.19E-02	0.33%
	*C-14	0	2.74E-02	0	0	2.74E-02	0.21%
	Te-125m	0	1.01E-02	0	0	1.01E-02	0.08%

*Activities based on 10CFR61 scaling factors.

Number of Shipments: 14

Mode of Transportation: Exclusive Use Vehicle

Destination: Chem Nuclear, Barnwell, South Carolina (7);
American Ecology Recycle Center, Oakridge, Tennessee (3);
Frank W Hake Associates, Memphis, Tennessee (2);
Alaron Corporation, Wampum, Pennsylvania (2).

B IRRADIATED FUEL SHIPMENTS

No irradiated fuel shipments for January through December, 1996

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TABLE 2.0-1 (continued)

BRAIDWOOD NUCLEAR POWER STATION
ANNUAL EFFLUENT REPORT FOR 1996
SOLID RADIOACTIVE WASTE
UNIT 1 AND 2 COMBINED (Docket Number 50-456 and 50-457)

Shipment Number	Waste Class	Type of Container	Solidification Agent or Absorbent
RWS-96-001	A	STC	NONE
RWS-96-002	A	TYPE A	NONE
RWS-96-003	A	STC	NONE
RWS-96-004	A	STC	NONE
RWS-96-005	A	STC	NONE
RWS-96-006	A	STC	NONE
RWS-96-007	A	TYPE A	NONE
RWS-96-008	A	STC	NONE
RWS-96-009	A	TYPE A	NONE
RWS-96-010	A	STC	NONE
RWS-96-011	A	TYPE A	NONE
RWS-96-012	A	TYPE A	NONE
RWS-96-013	C	TYPE B	NONE
RWS-96-014	A	TYPE A	NONE

FIGURE 3.1-1

Estimated Cumulative Gamma Dose (in mrem) from the Braidwood Station for the period January-December 1996

Isopleth Labels
Small figure - multiply by 10^{-6}
Large figure - multiply by 10^{-7}

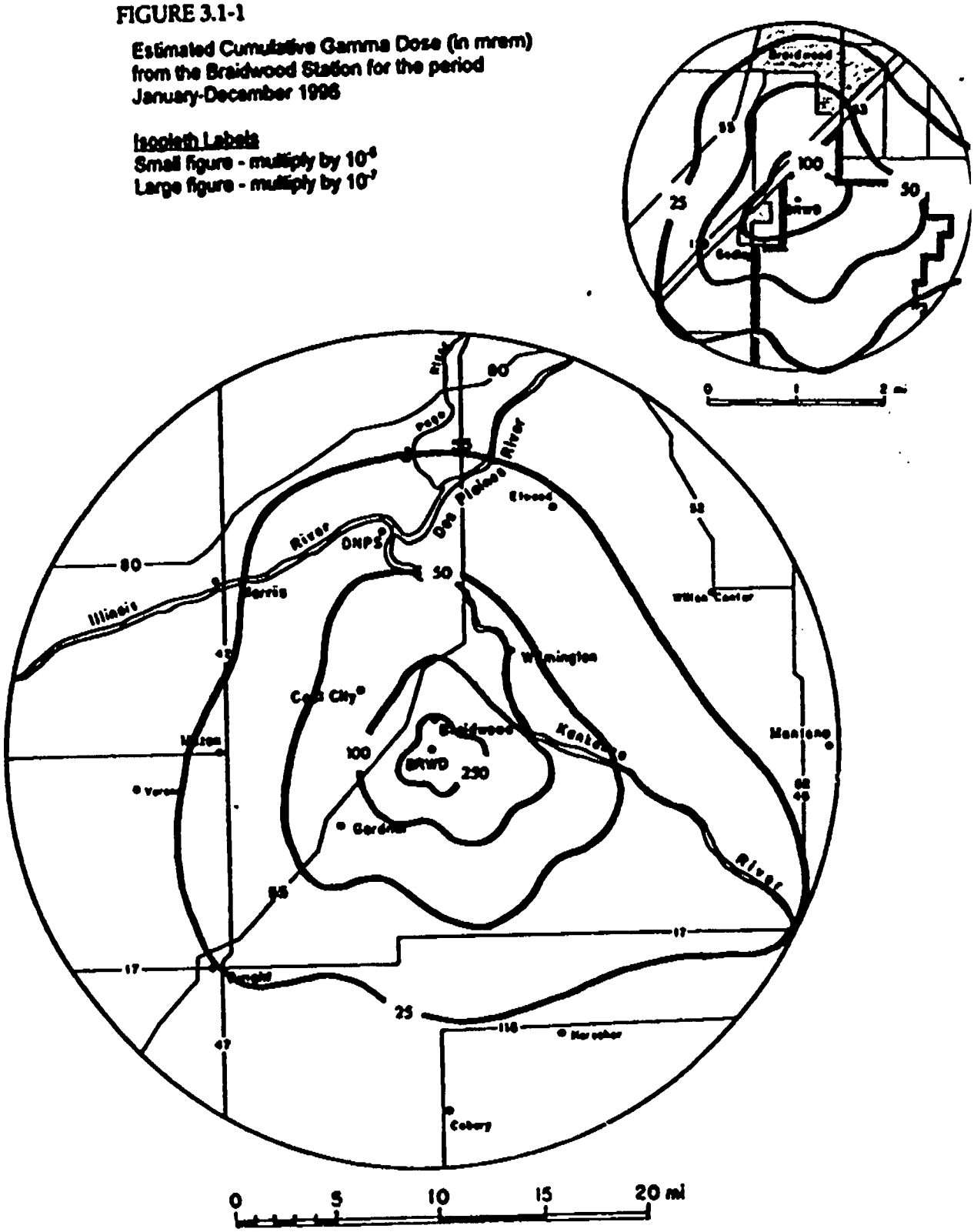


FIGURE 3.1-2

Estimated Total Concentrations (in pCi/m3) of Noble Gases from the Braidwood Station for the period January-December 1996

Isopleth Labels
Small figure - multiply by 10^{-2}
Large figure - multiply by 10^{-3}

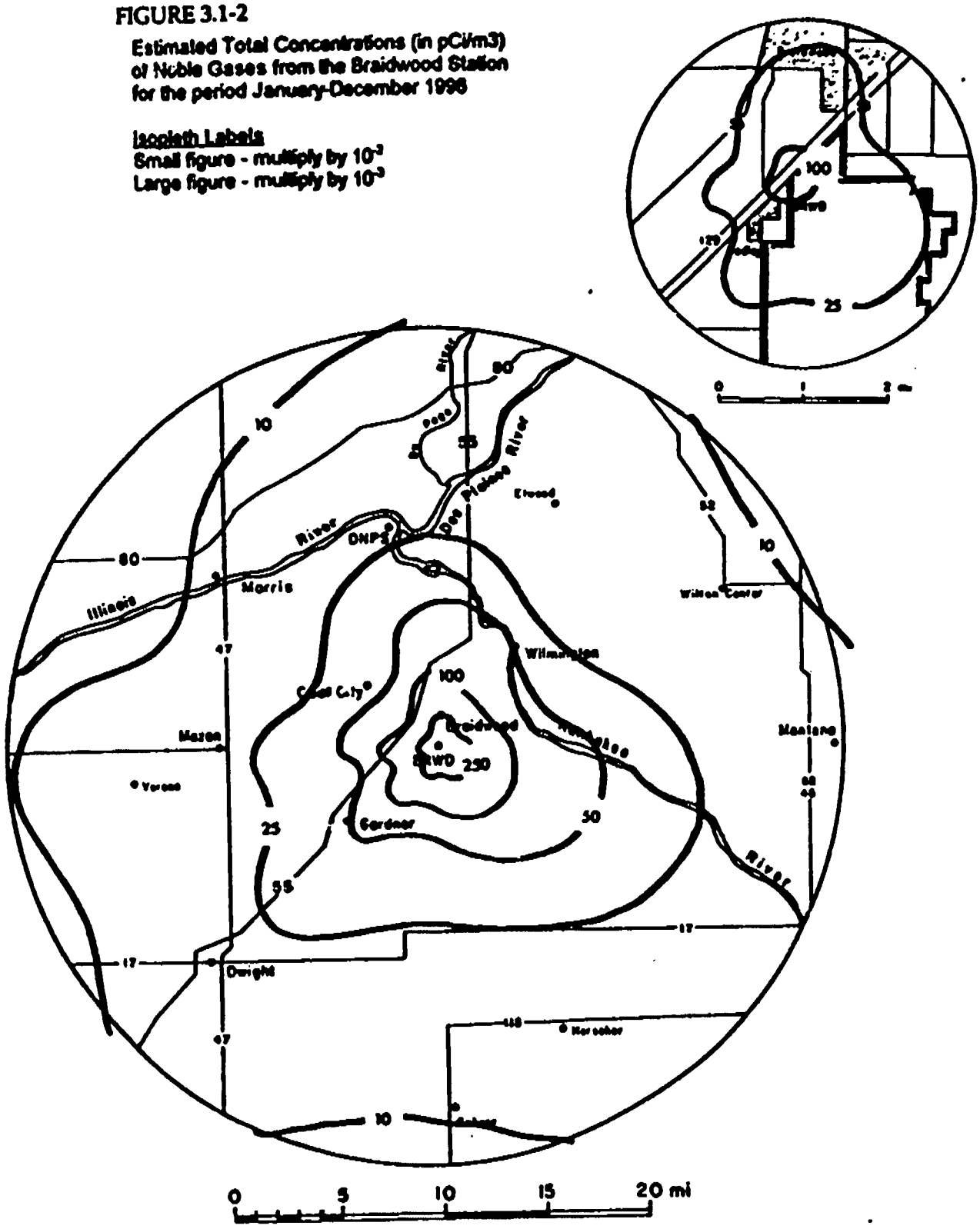
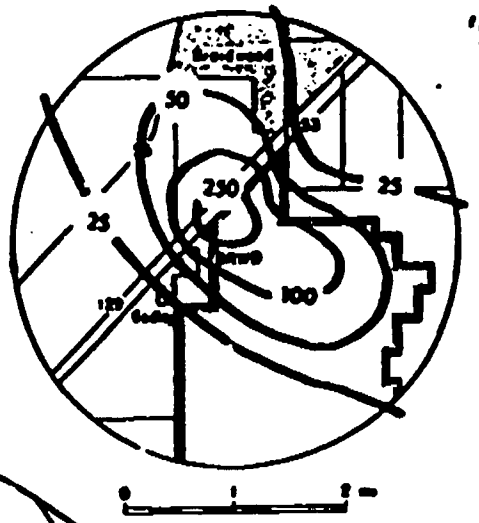


FIGURE 3.1-3

Estimated Total Concentrations (in pCi/m3) of Iodines from the Braidwood Station for the period January-December 1996

Isopleth Labels
Small figure - multiply by 10^{-7}
Large figure - multiply by 10^{-6}



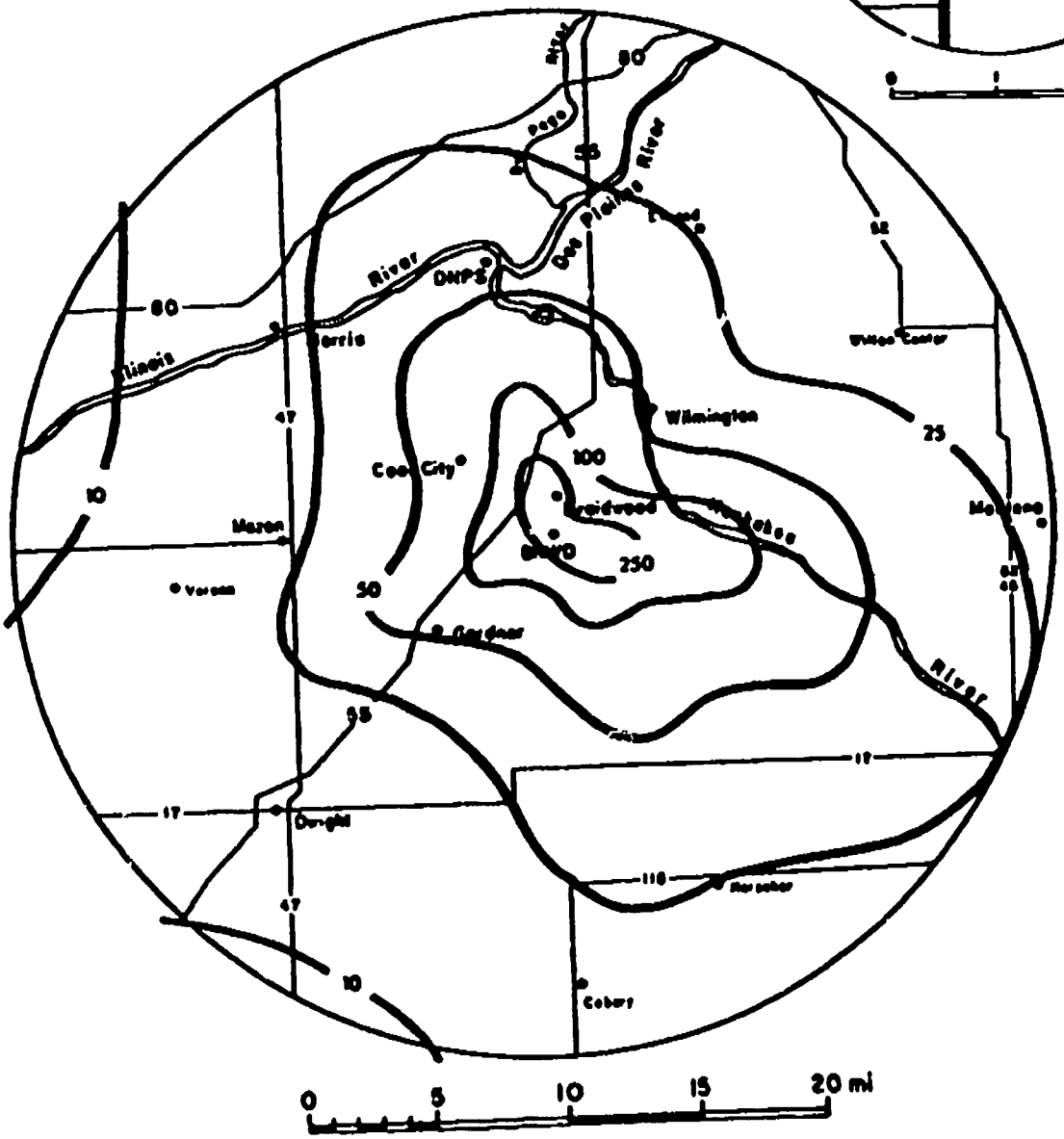


FIGURE 3.1-4

Estimated Total Concentrations (in pCi/m3) of Particulates from the Braidwood Station for the period January-December 1996

Isopleth Labels
Small figure - multiply by 10^{0}
Large figure - multiply by 10^{-10}

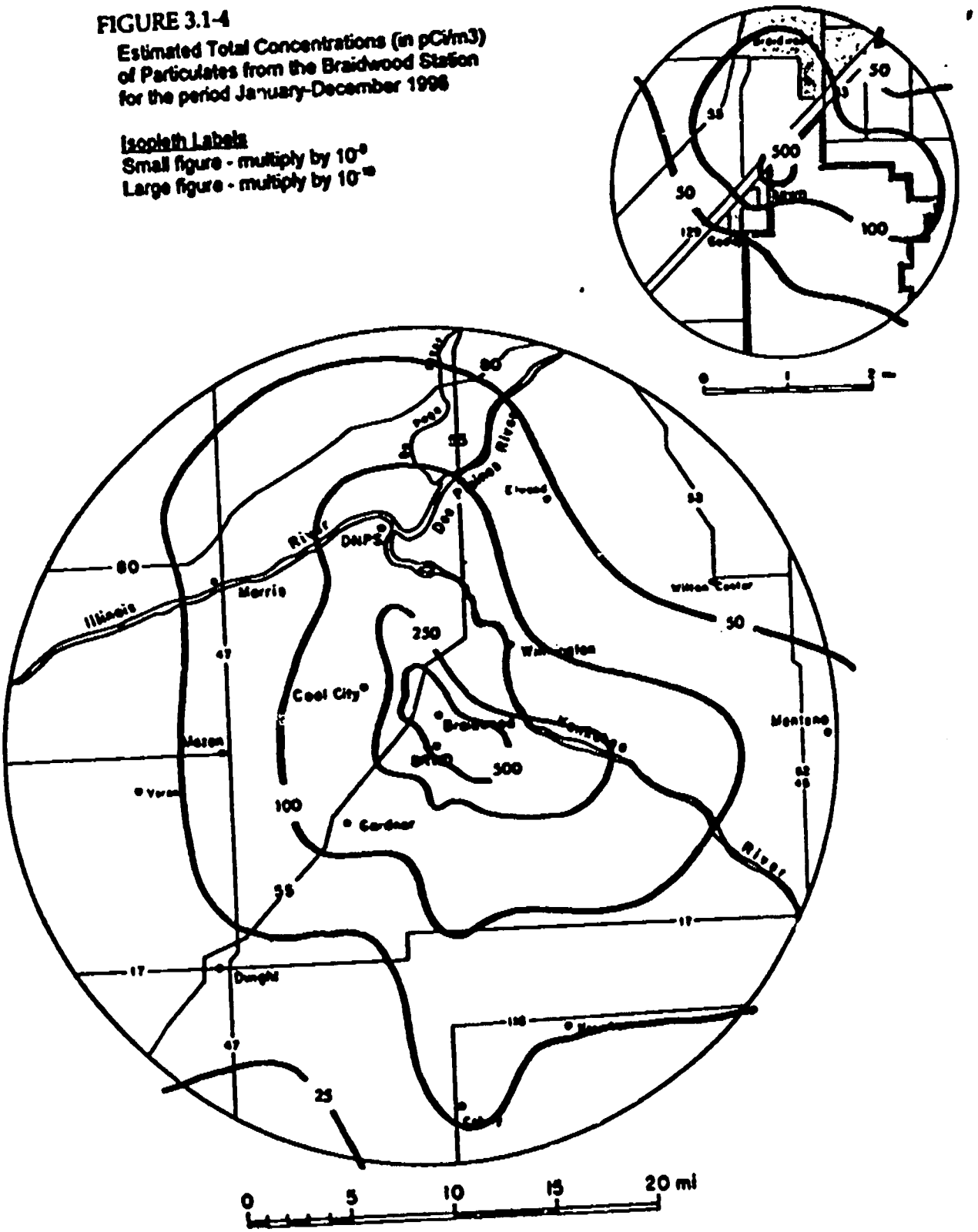


TABLE 3.1-1

BRAIDWOOD STATION UNIT ONE

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 04/07/96
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	3.33E-05	4.56E-05	1.73E-05	5.95E-05	1.02E-04
(MRAD)	(N)	(N)	(N)	(N)	(N)
BETA AIR	1.13E-04	1.52E-04	1.73E-05	8.11E-06	2.90E-04
(MRAD)	(N)	(N)	(N)	(N)	(N)
TOT. BODY	2.37E-05	3.25E-05	1.29E-05	4.42E-06	7.36E-05
(MREM)	(N)	(N)	(N)	(N)	(N)
SKIN	6.22E-05	8.46E-05	2.47E-05	8.98E-06	1.80E-04
(MREM)	(N)	(N)	(N)	(N)	(N)
ORGAN	9.68E-06	1.55E-05	8.49E-04	1.29E-03	2.16E-03
(MREM)	(E)	(E)	(E)	(E)	(E)
	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	THYROID

THIS IS A REPORT FOR THE CALENDAR YEAR 1996

COMPLIANCE STATUS - 10CFR 50 APP. I
INFANT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
		---------- % 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	0.01	0.02	15.0	0.01
		LIVER THYROID KIDNEY LUNG GI_LLI	THYROID	LIVER THYROID KIDNEY LUNG GI_LLI	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

BRAIDWOOD STATION UNIT ONE

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 04/07/97
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	3.33E-05	4.56E-05	1.73E-05	5.95E-06	1.02E-04
(MRAD)	(N)	(N)	(N)	(N)	(N)
BETA AIR	1.13E-04	1.52E-04	1.73E-05	8.11E-06	2.90E-04
(MRAD)	(N)	(N)	(N)	(N)	(N)
TOT. BODY	2.73E-05	3.25E-05	1.29E-05	4.42E-06	7.36E-05
(MREM)	(N)	(N)	(N)	(N)	(N)
SKIN	6.22E-05	8.46E-05	2.47E-05	8.98E-06	1.80E-04
(MREM)	(N)	(N)	(N)	(N)	(N)
ORGAN	8.19E-06	2.36E-04	1.91E-02	1.07E-02	3.00E-02
(MREM)	(E)	(N)	(N)	(N)	(N)
	LIVER	THYROID	LIVER	THYROID	THYROID
	THYROID		THYROID		
	KIDNEY		KIDNEY		
	LUNG		LUNG		
	GI_LLI		GI_LLI		

THIS IS A REPORT FOR THE CALENDAR YEAR 1996

COMPLIANCE STATUS - 10CFR 50 APP. I
ADULT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
		---------- % 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	0.25	0.14	15.0	0.20
		LIVER	THYROID	LIVER	THYROID		THYROID
		THYROID		THYROID			
		KIDNEY		KIDNEY			
		LUNG		LUNG			
		GI_LLI		GI_LLI			

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

BRAIDWOOD STATION UNIT TWO

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 04/07/97
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	7.42E-06	4.78E-06	1.06E-05	2.66E-05	4.94E-05
(MRAD)	(N)	(N)	(N)	(N)	(N)
BETA AIR	8.15E-06	4.77E-06	1.14E-05	2.18E-05	5.25E-05
(MRAD)	(N)	(N)	(N)	(N)	(N)
TOT. BODY	5.54E-06	3.58E-06	7.92E-06	1.99E-05	3.70E-05
(MREM)	(N)	(N)	(N)	(N)	(N)
SKIN	1.08E-05	6.91E-06	1.55E-05	3.87E-05	7.19E-05
(MREM)	(N)	(N)	(N)	(N)	(N)
ORGAN	2.31E-04	5.88E-05	9.31E-06	9.60E-05	3.96E-04
(MREM)	(N)	(N)	(N)	(N)	(N)
	LIVER	THYROID	LIVER	LUNG	THYROID
	THYROID		THYROID		
	KIDNEY		KIDNEY		
	LUNG		LUNG		
	GI_LLI		GI_LLI		

THIS IS A REPORT FOR THE CALENDAR YEAR 1996

COMPLIANCE STATUS - 10CFR 50 APP. I
INFANT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
		---------- % 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	LIVER	LUNG		THYROID
		THYROID		THYROID			
		KIDNEY		KIDNEY			
		LUNG		LUNG			
		GI_LLI		GI_LLI			

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

BRAIDWOOD STATION UNIT TWO

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 04/07/97
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	7.42E-06	4.78E-06	1.06E-05	2.66E-05	4.94E-05
(MRAD)	(N)	(N)	(N)	(N)	(N)
BETA AIR	8.15E-06	4.77E-06	1.14E-05	2.81E-05	5.25E-05
(MRAD)	(N)	(N)	(N)	(N)	(N)
TOT. BODY	5.54E-06	3.58E-06	7.92E-06	1.99E-05	3.70E-05
(MREM)	(N)	(N)	(N)	(N)	(N)
SKIN	1.08E-05	6.91E-06	1.55E-05	3.87E-05	7.19E-05
(MREM)	(N)	(N)	(N)	(N)	(N)
ORGAN	1.96E-04	8.84E-05	2.09E-04	6.32E-04	1.13E-03
(MREM)	(N)	(N)	(N)	(N)	(N)
	LIVER	THYROID	LIVER	LUNG	THYROID
	THYROID		THYROID		
	KIDNEY		KIDNEY		
	LUNG		LUNG		
	GI_LLI		GI_LLI		

THIS IS A REPORT FOR THE CALENDAR YEAR 1996

COMPLIANCE STATUS - 10CFR 50 APP. I
ADULT RECEPTOR

	QTRLY OBJ	1ST QTR JAN-MAR	2ND QTR APR-JUN	3RD QTR JUL-SEP	4TH QTR OCT-DEC	YRLY OBJ	% OF APP. I
		---------- % 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	0.01	15.0	0.01
		LIVER	THYROID	LIVER	LUNG		THYROID
		THYROID		THYROID			
		KIDNEY		KIDNEY			
		LUNG		LUNG			
		GI_LLI		GI_LLI			

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.2-1

BRAIDWOOD STATION UNIT ONE

ACTUAL 1996
MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 04/07/97
ADULT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	8.21E-03	4.60E-03	7.27E-03	1.14E-02	3.15E-02
INTERNAL ORGAN	9.89E-03	1.10E-02	8.12E-03	3.48E-02	6.38E-02
	GI_LLI	GI_LLI	GI_LLI	GI_LLI	GI_LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1996

COMPLIANCE STATUS - 10 CFR 50 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
		---------- % OF APP I. ----------					
TOTAL BODY (MREM)	1.5	0.55	0.31	0.48	0.76	3.0	1.05
CRIT. ORGAN(MREM)	5.0	0.20	0.22	0.16	0.70	10.0	0.64
		GI_LLI	GI_LLI	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.2-1 (continued)

BRAIDWOOD STATION UNIT TWO

ACTUAL 1996
MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 04/07/97
ADULT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	8.21E-03	4.60E-03	7.27E-03	1.14E-02	3.15E-02
INTERNAL ORGAN	9.89E-03	1.10E-02	8.12E-03	3.48E-02	6.38E-02
	GI_LLI	GI_LLI	GI_LLI	GI_LLI	GI_LLI

THIS IS A REPORT FOR THE CALENDAR YEAR 1996

COMPLIANCE STATUS - 10 CFR 50 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
		---------- % OF APP I. ----------					
TOTAL BODY (MREM)	1.5	0.55	0.31	0.48	0.76	3.0	1.05
CRIT. ORGAN(MREM)	5.0	0.20	0.22	0.16	0.70	10.0	0.64
		GI_LLI	GI_LLI	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1

BRAIDWOOD STATION UNIT ONE

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/96 TO 12/31/96

CALCULATED 04/07/97

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

Total Effective Dose Equivalent, mrem/yr		4.51E-02
10 CFR 20.1301 (a)(1) limit	mrem/yr	100.0
	% of limit	0.05

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	5.96E-03	4.47E-03	1.65E-02	1.82E-02	0.05

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

BRAIDWOOD STATION UNIT ONE

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/96 TO 12/31/96

CALCULATED 04/07/97

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

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	7.36E-05		
	Skyshine	0.00E+00		
	Ground	1.12E-06		
	Total	7.47E-05	25.0	0.00
Organ Dose (CDE)	Thyroid	3.91E-02	75.0	0.05
	Gonads	4.59E-02	25.0	0.18
	Breast	3.97E-02	25.0	0.16
	Lung	3.91E-02	25.0	0.16
	Marrow	4.06E-02	25.0	0.16
	Bone	4.11E-02	25.0	0.16
	Remainder	5.20E-02	25.0	0.21
	CEDE	4.50E-02		
	TEDE	4.51E-02	100.0	0.05

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

BRAIDWOOD STATION UNIT TWO

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/96 TO 12/31/96

CALCULATED 04/07/97

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

Total Effective Dose Equivalent, mrem/yr		2.70E-02
10 CFR 20.1301 (a)(1) limit	mrem/yr	100.0
	% of limit	0.03

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	6.12E-03	4.37E-03	4.77E-03	1.18E-02	0.03

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

BRAIDWOOD STATION UNIT TWO

10 CFR 20 COMPLIANCE ASSESSMENT

PERIOD OF ASSESSMENT 01/01/96 TO 12/31/96

CALCULATED 04/07/97

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

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	3.70E-05		
	Skyshine	0.00E+00		
	Ground	3.92E-08		
	Total	3.70E-05	25.0	0.00
Organ Dose (CDE)	Thyroid	2.10E-02	75.0	0.03
	Gonads	2.79E-02	25.0	0.11
	Breast	2.07E-02	25.0	0.09
	Lung	2.11E-02	25.0	0.08
	Marrow	2.26E-02	25.0	0.09
	Bone	2.31E-02	25.0	0.09
	Remainder	3.40E-02	25.0	0.14
	CEDE	2.70E-02		
	TEDE	2.70E-02	100.0	0.03

RESULTS BASED UPON: ODCM ANNEX REVISION 2.0 DECEMBER 1996
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

FIGURE 5.0-1

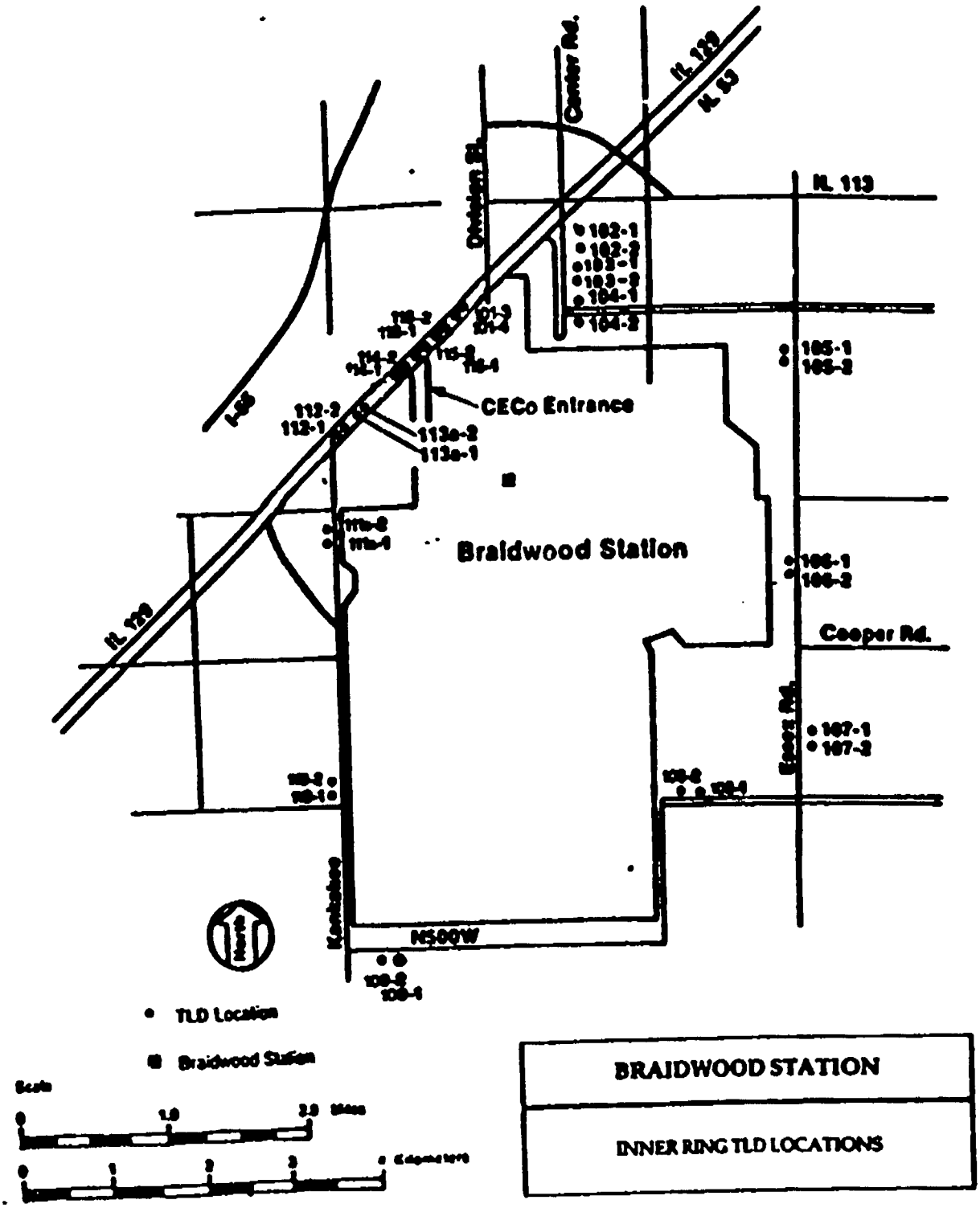
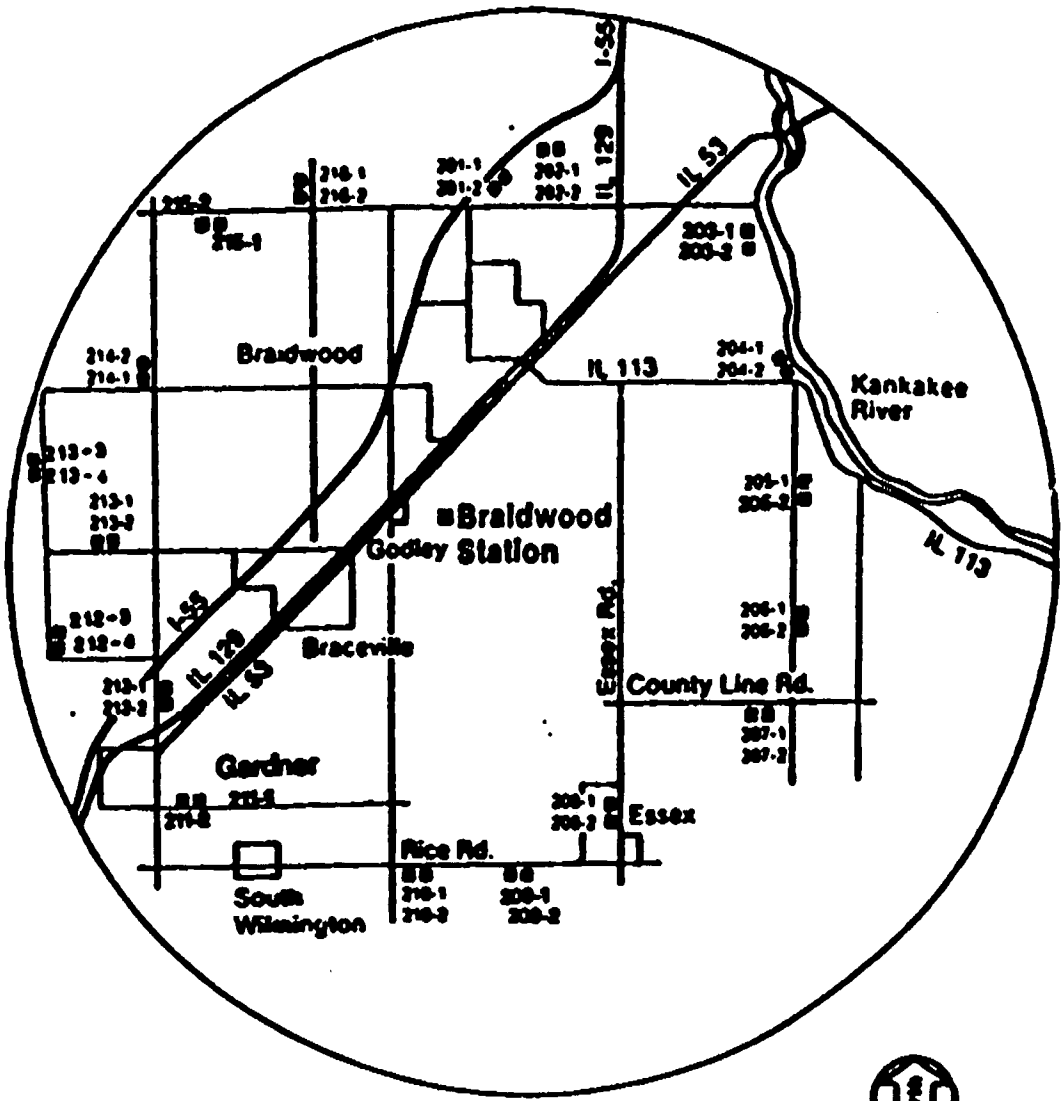
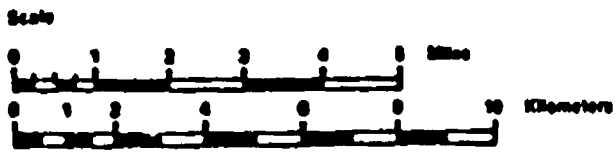

IL 113
CECo Entrance
Braidwood Station
Cooper Rd.
N500W
TLD Location
Braidwood Station
BRAIDWOOD STATION
INNER RING TLD LOCATIONS

FIGURE 5.0-2

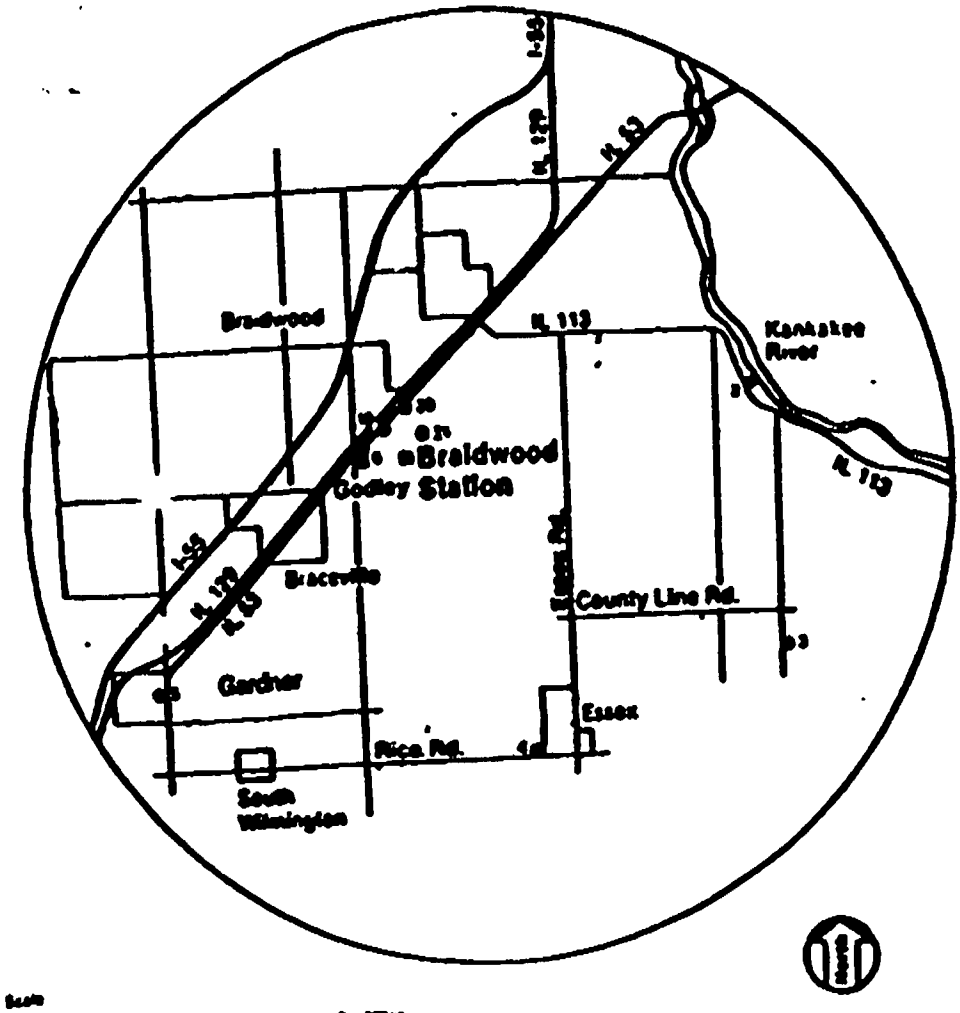




BRAIDWOOD STATION
OUTER RING TLD LOCATIONS

- TLD Location
- Braidwood Station

FIGURE 5.0-3



Scale

Miles

Kilometers

• Air Sampling Location

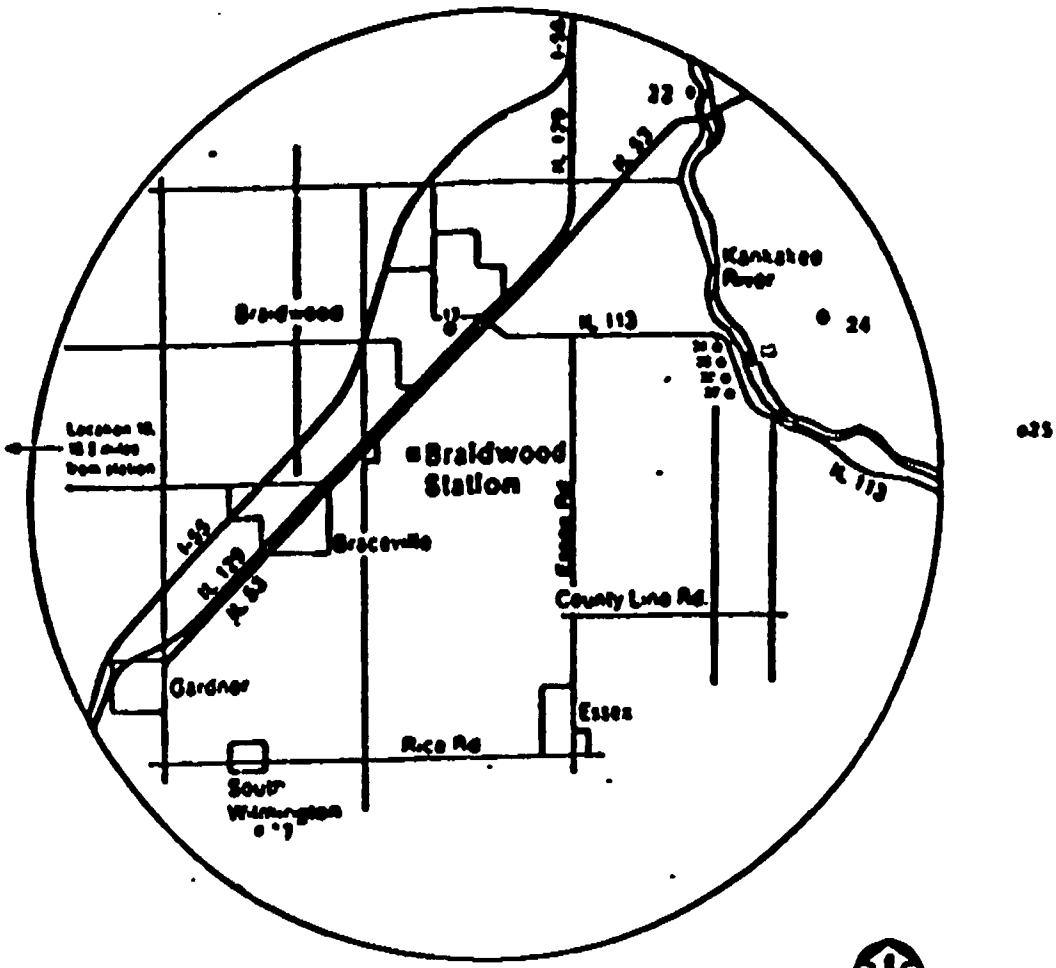
■ Braidwood Station

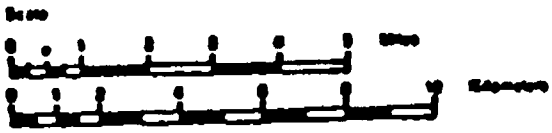
BRAIDWOOD STATION

FIXED AIR SAMPLING AND TLD SITES

BD-02 Custer Park
BD-03 County Line Road
BD-04 Essex
BD-05 Gardner
BD-06 Godley
BD-19 Nearsite NW
BD-20 Nearsite N
BD-21 Nearsite NE

FIGURE 5.0-4





• Sampling Location

■ Braidwood Station

BRAIDWOOD STATION

INGESTION AND WATERBORNE EXPOSURE PATHWAY SAMPLE LOCATIONS

BD-10 Kankakee River, Downstream
BD-13 Braidwood City Hall Well
BD-17 Helpin's Dairy
BD-18 Biros Farm
BD-22 Wilmington
BD-24 Goodwin Dairy
BD-25 Kankakee River, Upstream
BD-34 Gibson Well
BD-35 Joly Well
BD-36 Hutton Well
BD-37 Nurczyk

TABLE 5.0-1

Braidwood Station Radiological Environmental Monitoring Locations	Air Sampling	TLD	Cooling Water	Fish	Cooling Water	Milk	Sediments	Surface Water	Vegetables	Ground/Well Water
BD-02 Custer Park	0	0	.	.	.	.	.	.	.	.
BD-03 County Line Road	0	0	.	.	.	.	.	.	.	.
BD-04 Essex	0	0	.	.	.	.	.	.	.	.
BD-05 Gardner	0	0	.	.	.	.	.	.	.	.
BD-06 Godley	0	0	.	.	.	.	.	.	.	.
BD-10 Kankakee River, Downstream	.	.	.	.	.	.	0	0	.	.
BD-13 Braidwood City Hall	.	.	.	.	.	.	.	.	.	0
BD-Quad 1	.	.	.	.	.	.	.	.	0	.
BD-Quad 2	.	.	.	.	.	.	.	.	0	.
BD-Quad 3	.	.	.	.	.	.	.	.	0	.
BD-Quad 4	.	.	.	.	.	.	.	.	0	.
BD-Control	.	.	.	.	.	.	.	.	0	.
BD-17 Halpin's Dairy	.	.	.	.	.	0	.	.	.	.
BD-18 Biros Farm	.	.	.	.	.	0	.	.	.	.
BD-19 Nearsite NW	0	0	.	.	.	.	.	.	.	.
BD-20 Nearsite N	0	0	.	.	.	.	.	.	.	.
BD-21 Nearsite NE	0	0	.	.	.	.	.	.	.	.
BD-22 Wilmington	.	.	.	.	0	.	.	.	.	.
BD-25 Kankakee River, Upstream	.	.	.	0	.	.	.	0	.	.
BD-28 Kankakee River, Discharge	.	.	.	0	.	.	.	.	.	.
BD-34 Gibson Well	.	.	.	.	.	.	.	.	.	0
BD-35 Joly Well	.	.	.	.	.	.	.	.	.	0
BD-36 Hutton Well	.	.	.	.	.	.	.	.	.	0
BD-37 Nurczyk Well	.	.	.	.	.	.	.	.	.	0

CENSUS
Dairy
Residence
Cattle

TABLE 5.0-2

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

1. AIR SAMPLERS

Site Code[a]	Location	Distance (miles)	Direction (°)
BD-02	Custer Park	5.0	80
BD-03 (C)	County Line Road	6.2	120
BD-04	Essex	4.8	165
BD-05	Gardner	5.5	225
BD-06	Godley	0.5	245
BD-19	Nearsite NW	0.3	314
BD-20	Nearsite N	0.6	10
BD-21	Nearsite NE	0.5	43

2. TLDs

a. Same as No. 1.

b. Special TLD Locations

Site Code	Distance (miles)	Direction (°)
Inner Ring		
BD-101-3,4	0.5	9
BD-102-1,2	1.1	32
BD-103-1,2	1.0	76
BD-104-1,2	0.7	76
BD-105-1,2	2.2	85
BD-106-1,2	2.5	120
BD-107-1,2	3.2	135
BD-108-1,2	3.2	148
BD-109-1,2	3.8	190
BD-110-1,2	2.8	205
BD-111a-1,2	1.4	218
BD-112-1,2	0.7	252
BD-113a-1,2	0.5	263
BD-114-1,2	0.4	294
BD-115-1,2	0.3	315
BD-116-1	0.4	342
BD-116-2	0.5	342

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

TABLE 5.0-2 (continued)

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

2. TLDs

b. Special TLD Locations (continued)

Site Code	Distance (miles)	Direction (°)
Outer Ring		
BD-201-1,2	4.2	11
BD-202-1,2	4.2	20
BD-203-1,2	4.9	45
BD-204-1,2	4.3	70
BD-205-1,2	4.0	86
BD-206-1,2	4.5	112
BD-207-1,2	4.5	113
BD-208-1,2	4.5	155
BD-209-1,2	4.8	185
BD-210-1,2	5.3	195
BD-211-1,2	4.8	220
BD-212-3,4	5.0	240
BD-213-3,4	4.8	260
BD-214-1,2	4.3	287
BD-215-1,2	4.5	315
BD-216-1,2	4.0	330

3. MILK

Site Code[a]	Location	Distance (mile)	Direction (°)
BD-17	Halpin's Dairy	5.5	200
BD-18 (C)	Biros Farm	8.7	270
BD-24 (C)	Goodwin Dairy[b]	7.4	79

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

b Dairy went out of business in March of 1996.

TABLE 5.0-2 (continued)

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

4. VEGETABLES

Site Code	Location	Distance (miles)	Direction (°)
Quad 1	Clark Farm	3.3	67
Quad 2	Evelyn Heffner	3.5	127
Quad 3	Robert Mack	6.0	225
Quad 4	John Broucek	4.8	325
Control	Gormans Farm	9.0	37

5. PUBLIC WATER

Site Code	Location	Distance (miles)	Direction (°)
BD-22	Wilmington	5.0	23

6. GROUND/WELL WATER

Site Code[a]	Location	Distance (miles)	Direction (°)
BD-13	Braidwood City Hall Well	1.7	30
BD-34	Gibson Well	4.7	80
BD-35	Joly Well	4.7	80
BD-36	Hutton Well	4.7	80
BD-37	Nurczyk Well	4.7	80

7. SURFACE WATER

Site Code[a]	Location	Distance (miles)	Direction (°)
BD-10	Kankakee River, Downstream	5.4	42
BD-25 (C)	Kankakee River, Upstream	9.6	100

8. FISH

Site Code[a]	Location	Distance (miles)	Direction (°)
BD-25 (C)	Kankakee River, Upstream	9.6	100
BD-28	Kankakee River, Discharge	5.4	90

9. SHORELINE SEDIMENTS

Site Code[a]	Location	Distance (miles)	Direction (°)
BD-10	Kankakee River, Downstream	5.4	76

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

TABLE 5.0-2 (continued)

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

	Sample Media	Location: Code[a]	Location: Site	Collection Frequency	Type of Analyses	Frequency of Analyses	Remarks
1.	Airborne Particulates	Onsite and Near Field		Continuous operation for one week	Gross Beta Gamma isot.	Weekly Quarterly	On all samples. On Quarterly composite from each location.
		BD-02 BD-03 (C) BD-04 BD-05 BD-06 BD-19 BD-20 BD-21	Custer Park County Line Road Essex Gardner Godley Nearsite NW Nearsite N Nearsite NE		Gamma isot. Filter Exchange	 Weekly	If gross beta in a sample exceeds 10 times the yearly mean of control samples.
2.	Airborne Iodine	Same as 1.		Continuous operation for two weeks	I-131	Biweekly	On all samples.
3.	Air Sampling Train	Same as 1.		--	Test and Maintenance	Weekly	On all samplers.
4.	TLDs	a. Same as 1.		Quarterly	Gamma	Quarterly	Two sets of TLD's at all air sampler locations. All TLDs are read Quarterly.
		b. BD- 101-3,4 102-1,2 103-1,2 104-1,2 105-1,2 106-1,2 107-1,2 108-1,2 109-1,2 110-1,2 111a-1,2 112-1,2 113a-1,2 114-1,2 115-1,2 116-1,2	Inner Ring	Quarterly	Gamma	Quarterly	All TLDs are read Quarterly.

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

TABLE 5.0-2 (continued)

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

	Sample Media	Location: Code[a]	Location: Site	Collection Frequency	Type of Analyses	Frequency of Analyses	Remarks
4	TLDs (continued)	BD-201-1,2 202-1,2 203-1,2 204-1,2 205-1,2 206-1,2 207-1,2 208-1,2 209-1,2 210-1,2 211-1,2 212-3,4 213-3,4 214-1,2 215-1,2 216-1,2	Outer Ring				
5.	Milk	BD-17 BD-18 (C) BD-24 (C)	Halpin's Dairy Bros Farm Goodwin Dairy[b]	Biweekly: May-October Monthly: November-April	I-131 Gamma Isot.	Biweekly: May-October Monthly: November-April	On all samples.
6.	Vegetables	Quad 1 Quad 2 Quad 3 Quad 4 Control	Clarks Farm Evelyn Heffner Robert Mack John Broucek Gonnans Farm	Annually	Gamma Isot.	Annually	Four varieties from each location as available at harvest
7.	Public Water	BD-22	Wilmington	Weekly	Gross Beta Gamma Isot. Tritium	Monthly Monthly Quarterly	On Monthly composite. On Monthly composite. On Quarterly composite.

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

[b] Dairy went out of business in March of 1996; replaced by Bros Farm (BD-18).

TABLE 5.0-2 (continued)

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

	Sample Media	Location Code[a]	Location Site	Collection Frequency	Type of Analysis	Frequency of Analyses	Remarks
8.	Ground/Well Water	BD-13 BD-34 BD-35 BD-36 BD-37	Braidwood City Hall Gibson Well Joly Well Hutton Well Nurczyk Well	Quarterly	Gamma Isot Tritium	Quarterly	On all samples.
9.	Surface Water	BD-10 BD-25 (C)	Kankakee River, Downstream Kankakee River, Upstream	Weekly	Gross Beta Gamma Isot. Tritium	Monthly Monthly Quarterly	On monthly composites. On monthly composites. On Quarterly composite.
10.	Fish	BD-25 (C) BD-28	Kankakee River, Upstream Kankakee River, Discharge	Two times a year	Gamma Isot.	Two times a year	Spring and Fall. On edible portions only. At least two species.
12.	Shoreline Sediments	BD-10	Kankakee River, Downstream	Semiannually	Gamma Isot.	Semiannually	On all Samples.
13.	Land Use Census						
	Milch Animals	a. Site boundary to 2 miles		–	a. Enumeration by a door to door or equivalent counting technique.	Annually	During grazing season.

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

TABLE 5.0-2 (continued)

BRAIDWOOD STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

Sample Media	Location: Code[a]	Location: Site	Collection Frequency	Type of Analysis	Frequency of Analysis	Remarks
13. *Land Use Census* (continued)						
	b. 2 miles to 6.2 miles		--	b. Enumeration by using referenced information from county agricultural agents or other reliable sources.	Annually	During grazing season.
	c. At dairies listed in item 5.		--	c. Inquire as to feeding practices: 1. Pasture only. 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%.	Annually	During grazing season.
Nearest Residence Census	In all 16 sectors up to 6.2 miles				Annually	

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

TABLE 5.0-3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 1st Quarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Air Particulates (pCi/m^3)	Gross Beta	65	0.01	0.024 (52/52) (0.015-0.035)	BD-03, County Line Road, 6.2 mi @ 120°	0.025 (13/13) (0.014-0.044)	0.025 (13/13) (0.014-0.044)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD	-	-	<LLD	0
	Cs-137		0.01	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m^3)	I-131	55	0.07	<LLD	-	-	<LLD	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	12.4 (78/78) (10.9-15.8)	BD-201-1, 4.2 mi @ 11°	15.8 (1/1)	12.4(2/2)	0
Milk (pCi/L)	I-131	6	5.0	<LLD	-	-	<LLD	0
	Gamma Spec.	6						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Ba/La-140		15	<LLD	-	-	<LLD	0
Well Water (pCi/L)	Gamma Spec.	5						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15-30	<LLD	-	-	-	0
	Tritium	5	200	<LLD	-	-	-	0

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

TABLE 5.0-3 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Braidwood Nuclear Power Station Docket No 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 1st Quarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Surface Water (pCi/L)	Gross Beta	6	4	4.2 (1/3)	BD-25, Kankakee River, Upstream 9.6 mi. @ 100°	4.0 (3/3) (1.8-5.8)	5.1 (2/3) (4.3-5.8)	0
	Gamma Spec.	6						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Other Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	497 (1/1)	BD-10, Kankakee River, Downstream 5.4 mi. @ 76°	497 (1/1)	<LLD	0
Public Water (pCi/L)	Gross Beta	3	4	<LLD	-	-	-	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15	<LLD	-	-	-	0
	Tritium	3	200	2,756 (3/3) (1,609-3,585)	BD-22, Wilmington, 5.0 mi @ 23°	2,756(3/3) (1,609-3,585)	-	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 Braidwood Nuclear Power Station Docket No. 50-456, 50-457

Location of Facility Will, Illinois Reporting Period 2nd Quarter 1986

(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Air Particulates (pCi/m^3)	Gross Beta	65	0.01	0.017 (51/52) (0.010-0.024)	BD-06[b], Godley 0.5 mi @ 245°	0.017 (13/13) (0.011-0.021)	0.017 (13/13) (0.010-0.023)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD			<LLD	0
	Cs-137		0.01	<LLD			<LLD	0
Airborne Iodine (pCi/m^3)	I-131	65	0.07	<LLD			<LLD	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	12.3 (78/78) (10.9-15.8)	BD-201-1, 4.2 mi @ 5°	15.8 (1/1)	11.9 (2/2)	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		15-30	<LLD			<LLD	0
Well Water (pCi/L)	Gamma Spec.	5						
	Cs-134		15	<LLD				0
	Cs-137		18	<LLD				0
	Other Gammas		15-30	<LLD				0
	Tritium	5	200	633 (2/5) (570-696)	BD-36, Hutton Well, 4.7 mi. @ 80°	696(1/1)		0

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

b Locations BD-06 BD-19, BD-20 and BD-21 had identical means of 0.017 pCi/m^3. Only BD-06 is detailed in this summary.

c 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 Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 2nd Quarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Surface Water (pCi/L)	Gross Beta	6	4	<LLD	BD-25, Kankakee River, Upstream 9.6 mi. @ 100°	3.6 (3/3) (2.9-4.2)	4.2 (1/3)	0
	Gamma Spec.	6						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Other Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	367(1/1)	BD-10, Kankakee River, Downstream 5.4 mi @ 76°	367 (1/1)	<LLD	0
Drinking Water (pCi/L)	Gross Beta	3	4	<LLD	-	-	-	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15-30	[illegible]	-	-	-	0
	Tritium	3	200		BD-22, Wilmington, 5.0 mi @ 230°	687 (3/3) (214-1,099)	-	0

[a] Mean and range based on detectable measurements.

TABLE 5.0-4 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 2nd Quarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Fish (pCi/g wet)	Gamma Spec. 9						
	Cs-134	0.10	<LLD	-	-	<LLD	0
	Cs-137	0.10	<LLD	-	-	<LLD	0
	Other Gammas	0.13-0.26	<LLD	-	-	<LLD	0
Bottom Sediments (pCi/g dry)	Gamma Spec. 1						
	Cs-134	0.15	<LLD	-	-	-	0
	Cs-137	0.18	0.22 (1/1)	BD-10, Kankakee River, Downstream 3.4 mi. @ 42°	0.22 (1/1)	-	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 Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 3rd Quarter 1986
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Air Particulates (pCi/m^3)	Gross Beta	65	0.01[b]	0.021 (50/52) (0.012-0.032)	BD-19, Nearsite NW 0.3 mi @ 314°	0.022 (13/13) (0.013-0.032)	0.020 (13/13) (0.013-0.029)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD	-	-	<LLD	0
	Cs-137		0.01	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m^3)	I-131	35	0.07	<LLD	-	-	<LLD	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	14.6 (78/78) (12.9-18.6)	BD-209-1 4.8 mi @ 180°	18.6 (1/1)	14.8(2/2)	0
Milk (pCi/L)	I-131	12	0.5	<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

[a] Mean and range based on detectable measurements only. Fractions indicated in parentheses.
[b] One (1) result was excluded in the determination of LLD for gross beta. Higher than normal LLD (0.14 pCi/m^3) resulted from low volume due to pump malfunction.

TABLE 5.0-5 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 3rd Quarter 1986
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Well Water (pCi/L)	Gamma Spec.	5						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15-30	<LLD	-	-	-	0
	Tritium	5	200	458 (2/5) (377-539)	BD-36, Hutton Well 4.7 mi. @ 80°	539 (1/1)	-	0
Surface Water (pCi/L)	Gross Beta	6	4	4.2 (1/3)	BD-25, Kankakee River, Upstream 9.6 mi. @ 100°	4.5 (3/3) (3.5-5.5)	5.0 (2/3) (4.5-5.5)	0
	Gamma Spec.	6						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Other Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	801(1/1)	BD-10, Kankakee River, Downstream, 5.4 mi @ 76°	801(1/1)	<LLD	0
Drinking Water (pCi/L)	Gross Beta	3	4	4.4 (2/3) (4.1-4.6)	BD-22, Wilmington, 5.0 mi @ 230°	4.0 (3/3) (3.3-4.6)	-	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15-30	<LLD	-	-	-	0
	Tritium	3	200	2,334 (3/3) (1,518-3,279)	BD-22, Wilmington, 5.0 mi @ 230°	2,334 (3/3) (1,518-3,279)	-	0

[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 Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 3rd Quarter, 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Vegetation (pCi/g wet)	Gamma Spec.	20						
	Cs-134		0.06	<LLD	-	-	-	0
	Cs-137		0.08	<LLD	-	-	-	0
	I-131	10	0.06	<LLD	-	-	-	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 Braidwood Nuclear Power Station Docket No. 50-456, 50-457

Location of Facility Will, Illinois Reporting Period 4th Quarter 1998

(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean 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) (0.015-0.042)	BD-19[b] Nearsite NW 0.3 mi @ 314°	0.026 (13/13) (0.018-0.042)	0.023(13/13) (0.017-0.030)	0
	Gamma Spec.	5						
	Cs-134		0.01	<LLD	-	-	<LLD	0
	Cs-137		0.01	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m^3)	I-131	30	0.07	<LLD	-	-	<LLD	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	80	9.7	14.1 (78/78) (11.8-17.8)	BD-209-2[c] 4.8 mi @ 182°	17.8 (1/1)	14.1 (2/2)	0
Milk (pCi/L)	I-131	8	0.5/5.0[d]	<LLD	-	-	<LLD	0
	Gamma Spec.	8						
	Cs-134		15	<LLD	-	-	<LLD	0
	Cs-137		18	<LLD	-	-	<LLD	0
	Ba/La-140		15	<LLD	-	-	<LLD	0
Well Water (pCi/L)	Gamma Spec.	5						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15-30	<LLD	-	-	-	0
	Tritium	5	200	514 (2/5) (498-530)	BD-34, Gibson Well, 4.7 mi @ 80°	530 (1/1)	-	0

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

[b] Locations BD-19 and BD-21 had identical means of 0.026 pCi/m^3. Only BD-19 is detailed in this summary.

[c] Locations BD-209-2 and BD-216-2 had identical means of 17.8 mR/qtr. Only BD-209-2 is detailed in this summary.

[d] 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 Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 4th Quarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
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 Gammas		15-30	<LLD	-	-	<LLD	0
	Tritium	2	200	278 (1/1)	BD-10, Kankakee River, Downstream, 5.4 mi @ 76°	278 (1/1)	<LLD	0
Drinking Water (pCi/L)	Gross Beta	3	4	<LLD	-	-	-	0
	Gamma Spec.	3						
	Cs-134		15	<LLD	-	-	-	0
	Cs-137		18	<LLD	-	-	-	0
	Other Gammas		15-30	<LLD	-	-	-	0
	Tritium	3	200	3,524 (3/3) (2,069-5,111)	BD-22, Wilmington, 5 mi @ 23°	3,524 (3/3) (2,069-5,111)	-	0

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

TABLE 5.0-6 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Braidwood Nuclear Power Station Docket No. 50-456, 50-457
Location of Facility Will, Illinois Reporting Period 4th Quarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean: Location	Location with Highest Quarterly Mean: Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Bottom Sediments (pCi/g dry)	Gamma Spec 1						
	Cs-134	0.15	<LLD	-	-	-	0
	Cs-137	0.18	<LLD	-	-	-	0
Fish (pCi/g wet)	Gamma Spec. 13						
	Cs-134	0.10	<LLD	-	-	<LLD	0
	Cs-137	0.10	<LLD	-	-	<LLD	0
	Other Gammas	0.13-0.26	<LLD	-	-	<LLD	0

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

APPENDIX II

METEOROLOGICAL DATA

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
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	1	0	0	0	1
E	0	0	3	0	0	0	3
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	1	1
S	0	0	0	2	0	2	4
SSW	0	0	0	1	0	0	1
SW	0	0	0	0	0	1	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	2	5	0	7
NW	0	0	0	4	2	0	6
NNW	0	0	1	5	0	0	6
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	5	14	7	4	30

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	2	0	0	0	2
E	0	0	3	0	0	0	3
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	3	4	0	0	7
SSW	0	0	1	2	1	0	4
SW	0	0	0	0	0	0	0
WSW	0	0	1	0	0	0	1
W	0	0	1	0	0	0	1
WNW	0	0	0	4	4	0	8
NW	0	0	4	3	0	0	7
NNW	0	0	0	6	1	0	7
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	16	20	6	0	42

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	0	2	1	3
NNE	0	0	0	0	0	0	0
NE	0	1	2	2	0	0	5
ENE	1	0	2	0	0	0	3
E	0	0	2	0	0	0	2
ESE	0	1	2	0	0	0	3
SE	0	0	1	0	1	0	2
SSE	0	0	0	0	0	1	1
S	0	0	4	3	0	0	7
SSW	0	0	0	6	1	2	9
SW	0	0	0	1	0	0	1
WSW	0	0	0	1	0	0	1
W	0	0	9	6	0	0	15
WNW	0	0	6	6	5	0	17
NW	0	0	5	2	2	0	9
NNW	0	0	2	7	0	0	9
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	2	35	34	11	4	87

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1998

STABILITY CLASS - NEUTRAL (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	4	7	19	10	5	45
NNE	0	3	9	7	4	0	23
NE	1	7	18	20	4	0	50
ENE	1	2	11	2	0	0	16
E	1	5	12	1	0	0	19
ESE	1	2	6	1	3	0	13
SE	1	2	17	9	23	5	57
SSE	0	2	18	18	4	4	46
S	0	2	13	25	9	10	59
SSW	1	0	9	12	17	12	51
SW	2	2	11	25	5	3	48
WSW	0	2	10	19	2	0	33
W	1	13	7	18	20	14	73
WNW	2	9	26	27	26	34	124
NW	2	8	38	36	15	2	101
NNW	0	7	25	50	17	5	104
VARIABLE	0	0	0	0	0	0	0
TOTAL	13	70	237	289	159	94	862

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	6	15	19	12	8	60
NNE	2	4	21	35	16	1	79
NE	2	9	28	22	11	9	81
ENE	0	5	24	2	0	0	31
E	0	3	28	3	0	0	34
ESE	1	3	5	10	11	0	30
SE	0	3	4	25	8	9	49
SSE	0	2	10	34	10	18	74
S	0	3	18	39	31	21	112
SSW	0	2	7	20	37	20	86
SW	0	6	11	20	6	6	49
WSW	0	4	10	31	4	6	55
W	0	6	13	15	9	23	66
WNW	0	3	15	22	11	14	65
NW	1	3	20	25	0	0	49
NNW	0	2	31	23	5	0	61
VARIABLE	0	0	0	0	0	0	0
TOTAL	6	64	260	345	171	135	981

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	4	9	2	0	0	15
NNE	0	1	0	0	0	0	1
NE	0	2	2	0	0	4	8
ENE	0	0	2	0	0	0	2
E	0	2	2	2	0	0	6
ESE	0	1	5	6	0	0	12
SE	0	0	2	1	0	0	3
SSE	0	0	2	7	0	0	9
S	0	0	0	8	0	0	8
SSW	0	1	0	4	1	0	6
SW	0	1	4	5	3	2	15
WSW	0	0	4	3	0	7	14
W	0	0	0	5	0	3	8
WNW	1	1	5	13	0	0	20
NW	0	1	8	3	0	0	12
NNW	0	1	13	2	0	0	16
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	15	58	61	4	16	155

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND SPEED (in mph)

WIND DIRECTION	0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	2	1	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	0	1	0	0	0	0	1
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	2	0	0	2
SW	0	0	1	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	1	0	0	0	1
WNW	0	0	0	9	0	0	9
NW	0	1	3	1	0	0	5
NNW	1	0	0	1	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	6	7	13	0	0	27

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

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1998

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

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

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	3	5	0	0	8
NNE	0	0	2	1	0	0	3
NE	0	0	3	1	0	0	4
ENE	0	4	1	0	0	0	5
E	0	2	0	1	0	0	3
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	1	2	0	0	3
S	0	2	1	2	1	3	9
SSW	0	2	2	2	1	0	7
SW	0	0	1	1	1	0	3
WSW	0	0	1	1	0	0	2
W	0	0	1	1	0	0	2
WNW	0	0	2	2	0	0	4
NW	0	0	2	2	2	0	6
NNW	0	1	4	1	1	0	7
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	11	25	22	6	3	67

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	2	3	4	0	0	9
NNE	0	0	4	0	0	0	4
NE	0	3	2	2	0	0	7
ENE	0	1	3	0	0	0	4
E	0	2	4	2	0	0	8
ESE	0	1	2	0	0	0	3
SE	0	0	1	0	1	1	3
SSE	0	2	5	2	2	1	12
S	0	1	1	5	0	1	8
SSW	0	0	2	2	2	2	8
SW	0	0	3	3	0	0	6
WSW	0	2	2	0	0	0	4
W	0	0	1	1	1	1	4
WNW	0	0	4	3	1	2	10
NW	0	1	5	2	1	0	9
NNW	0	0	4	3	0	0	7
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	15	46	29	8	8	106

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1998

STABILITY CLASS - NEUTRAL (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	7	16	15	3	0	41
NNE	1	10	15	12	3	0	41
NE	0	15	17	23	2	0	57
ENE	1	13	22	20	1	0	57
E	0	9	6	6	0	0	21
ESE	0	14	6	5	2	0	27
SE	1	1	8	4	6	0	20
SSE	1	3	7	11	8	2	32
S	0	3	6	4	9	5	27
SSW	0	0	7	12	7	16	42
SW	0	2	16	31	14	9	72
WSW	0	5	12	9	5	0	31
W	0	4	19	18	5	6	52
WNW	2	9	13	22	5	8	59
NW	0	14	26	9	13	1	63
NNW	1	7	6	7	6	1	28
VARIABLE	0	0	0	0	0	0	0
TOTAL	7	116	202	208	89	48	670

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

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	2	6	19	11	4	0	42
NNE	1	10	16	32	6	0	65
NE	2	7	23	45	3	0	80
ENE	3	26	59	45	4	0	137
E	0	16	51	35	8	0	110
ESE	0	0	21	12	5	1	39
SE	1	6	34	25	11	0	77
SSE	0	1	25	21	13	5	65
S	0	0	8	23	18	12	61
SSW	0	2	6	32	30	30	100
SW	0	3	18	35	24	13	93
WSW	0	3	31	23	6	4	67
W	0	4	28	10	13	3	58
WNW	3	5	20	23	6	1	58
NW	2	8	7	9	1	0	27
NNW	0	5	7	4	0	0	16
VARIABLE	0	0	0	0	0	0	0
TOTAL	14	102	373	385	152	69	1095

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1998

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND SPEED (in mph)

WIND DIRECTION	0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	1	1	1	0	0	0	3
NNE	0	1	2	0	0	0	3
NE	0	1	3	0	0	0	4
ENE	1	0	4	0	0	0	5
E	1	1	5	1	0	0	8
ESE	1	0	5	14	0	0	20
SE	2	1	5	4	0	0	12
SSE	0	1	1	3	0	0	5
S	0	2	4	3	0	0	9
SSW	1	1	6	1	3	0	12
SW	0	2	8	3	3	0	16
WSW	1	2	3	4	0	0	10
W	1	2	5	6	0	0	14
WNW	0	3	7	5	0	0	15
NW	2	0	2	0	0	0	4
NNW	0	1	4	1	0	0	6
VARIABLE	0	0	0	0	0	0	0
TOTAL	11	19	65	45	6	0	146

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	2	0	0	0	0	2
ENE	1	1	0	0	0	0	2
E	0	0	2	0	0	0	2
ESE	0	0	0	5	0	0	5
SE	0	2	1	0	0	0	3
SSE	0	2	2	0	0	0	4
S	1	0	1	0	0	0	2
SSW	1	2	0	0	0	0	3
SW	0	1	7	0	1	0	9
WSW	0	4	2	3	0	0	9
W	0	0	4	8	2	0	14
WNW	0	3	3	4	0	0	10
NW	2	0	0	0	0	0	2
NNW	0	1	0	0	0	0	1
VARIABLE	0	0	0	0	0	0	0
TOTAL	5	19	22	20	3	0	69

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	3	4	2	1	0	10
NNE	0	3	3	3	0	0	9
NE	0	6	7	0	0	0	13
ENE	0	4	4	0	0	0	8
E	0	4	9	0	0	0	13
ESE	0	2	1	0	0	0	3
SE	0	4	0	0	0	0	4
SSE	0	0	5	0	1	0	6
S	0	0	6	3	0	0	9
SSW	0	1	0	12	3	0	16
SW	0	0	1	2	2	0	5
WSW	0	0	0	0	0	0	0
W	0	0	4	11	0	0	15
WNW	0	0	3	7	0	0	10
NW	0	0	6	10	0	0	16
NNW	0	2	2	10	1	0	15
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	29	55	60	8	0	152

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

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	1	1	3	1	0	6
NNE	0	1	1	0	0	0	2
NE	0	0	2	4	0	0	6
ENE	0	2	1	0	0	0	3
E	1	2	4	0	0	0	7
ESE	0	5	0	0	0	0	5
SE	0	4	0	0	0	0	4
SSE	0	0	4	1	0	0	5
S	0	0	0	2	4	0	6
SSW	0	0	2	3	2	0	7
SW	0	2	2	0	0	0	4
WSW	0	0	1	1	0	0	2
W	0	5	5	3	0	0	13
WNW	0	3	11	5	5	0	24
NW	0	0	2	4	0	0	6
NNW	0	2	5	4	0	0	11
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	27	41	30	12	0	111

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND SPEED (in mph)

WIND DIRECTION	0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	3	5	1	0	0	9
NNE	0	14	0	1	1	0	16
NE	0	5	2	1	1	0	9
ENE	0	3	2	0	0	0	5
E	0	6	1	0	0	0	7
ESE	0	3	0	0	0	0	3
SE	1	10	3	0	0	0	14
SSE	0	1	0	0	0	0	1
S	0	0	5	1	1	0	7
SSW	0	2	2	1	1	0	6
SW	0	4	1	3	0	0	8
WSW	0	3	11	5	0	0	19
W	0	5	9	4	0	0	18
WNW	0	3	6	0	1	0	10
NW	1	0	8	1	1	0	11
NNW	0	4	4	4	0	0	12
VARIABLE	0	0	0	0	0	0	0
TOTAL	2	66	59	22	6	0	155

ours of calm in this stability class: 0
ours of missing wind measurements in this stability class: 3
ours of missing stability measurements in all stability classes: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - NEUTRAL (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND SPEED (in mph)

WIND DIRECTION	0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	3	13	7	0	0	0	23
NNE	2	8	3	8	0	0	21
NE	7	14	8	11	3	0	43
ENE	8	11	11	4	0	0	34
E	2	4	7	4	0	0	17
ESE	1	7	5	1	2	0	16
SE	0	14	12	1	3	0	30
SSE	1	11	15	7	1	0	35
S	1	4	5	5	5	0	20
SSW	0	2	11	11	2	0	26
SW	0	9	17	7	2	0	35
WSW	0	8	15	3	0	0	26
W	0	12	18	16	0	0	46
WNW	2	10	13	9	0	0	34
NW	0	17	12	8	2	0	39
NNW	2	10	13	10	1	0	36
VARIABLE	0	0	0	0	0	0	0
TOTAL	29	154	172	105	21	0	481

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 15
Hours of missing stability measurements in all stability classes: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	2	7	27	1	0	1	38
NNE	0	6	13	5	0	0	24
NE	2	13	33	12	0	0	60
ENE	3	15	37	3	0	0	58
E	1	11	27	5	0	0	44
ESE	0	5	18	20	3	1	47
SE	2	4	31	21	1	0	59
SSE	0	3	36	20	2	0	61
S	0	2	15	35	4	0	56
SSW	0	5	25	33	2	2	67
SW	0	6	18	27	2	0	53
WSW	1	3	15	11	3	0	33
W	2	3	22	6	1	0	34
WNW	3	5	18	4	0	0	30
NW	0	5	9	7	0	0	21
NNW	4	11	21	18	0	0	54
VARIABLE	0	0	0	0	0	0	0
TOTAL	20	104	365	228	18	4	739

ours of calm in this stability class: 0
ours of missing wind measurements in this stability class: 20
ours of missing stability measurements in al. stability classes: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	5	14	4	0	0	23
NNE	0	2	11	5	0	0	18
NE	1	2	5	0	0	0	8
ENE	2	7	11	0	0	0	20
E	2	2	15	2	0	0	21
ESE	1	3	12	5	0	0	21
SE	0	8	23	13	0	0	44
SSE	2	3	3	2	0	0	10
S	1	[illegible]	4	7	0	0	18
SSW	0	1	5	1	0	0	7
SW	0	2	10	5	0	0	17
WSW	0	2	5	9	0	0	16
W	2	4	15	13	0	0	34
WNW	1	2	17	10	0	0	30
NW	1	6	20	1	0	0	28
NNW	0	6	8	0	0	0	14
VARIABLE	0	0	0	0	0	0	0
TOTAL	13	61	178	77	0	0	329

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 15
Hours of missing stability measurements in all stability classes: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND SPEED (in mph)

WIND DIRECTION	0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	7	20	1	0	0	28
NNE	1	5	10	6	0	0	22
NE	2	4	3	0	0	0	9
ENE	1	0	7	0	0	0	8
E	2	2	8	0	0	0	12
ESE	0	2	13	4	0	0	19
SE	1	4	4	0	0	0	9
SSE	2	1	0	0	0	0	3
S	1	1	1	0	0	0	3
SSW	2	1	1	0	0	0	4
SW	2	0	4	0	0	0	6
WSW	2	1	1	2	0	0	6
W	2	1	0	1	0	0	4
WNW	0	0	6	6	0	0	12
NW	0	4	9	6	0	0	19
NNW	2	3	14	2	0	0	21
VARIABLE	0	0	0	0	0	0	0
TOTAL	20	36	101	28	0	0	185

lours of calm in this stability class: 0
lours of missing wind measurements in this stability class: 2
lours of missing stability measurements in all stability classes: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	1	0	0	0	1
ENE	0	2	0	0	0	0	2
E	0	1	0	0	0	0	1
ESE	0	0	0	1	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	1	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	5	1	0	6
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	1	6	2	0	12

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
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	2	0	0	0	2
E	0	0	1	0	0	0	1
ESE	0	0	2	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	1	0	0	1	2
S	0	0	0	1	0	0	1
SSW	0	0	2	3	0	0	5
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	1	0	1
NW	0	0	0	2	0	0	2
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	0	8	6	1	1	16

ours of calm in this stability class: 0
ours of missing wind measurements in this stability class: 0
ours of missing stability measurements in all stability classes: 0.

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	2	0	0	0	3
E	0	1	1	0	0	0	2
ESE	0	1	1	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	1	2	0	3	0	6
S	0	0	0	0	3	1	4
SSW	0	0	0	3	2	0	5
SW	0	0	0	10	0	0	10
WSW	0	0	1	0	0	0	1
W	0	0	0	1	1	0	2
WNW	0	0	0	3	4	0	7
NW	0	0	5	7	0	0	12
NNW	0	0	0	2	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	5	12	27	13	1	58

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - NEUTRAL (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	10	6	16	0	0	32
NNE	0	4	2	13	0	0	19
NE	2	7	0	3	0	0	12
ENE	1	7	7	1	0	0	16
E	1	4	6	0	0	0	11
ESE	0	2	12	0	0	0	14
SE	1	6	10	3	7	8	35
SSE	0	5	16	13	13	3	50
S	-	2	6	13	23	5	50
SSW	1	3	7	7	5	7	30
SW	0	4	8	16	1	0	29
WSW	0	8	12	23	1	0	44
W	0	8	10	39	26	10	93
WNW	0	9	14	32	20	5	80
NW	1	6	10	29	5	0	51
NNW	0	7	9	8	1	0	25
VARIABLE	0	0	0	0	0	0	0
TOTAL	8	92	135	216	102	38	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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TO
N	2	23	22	23	4	0	
NNE	2	13	8	16	0	0	[illegible]
NE	2	14	20	9	5	0	[illegible]
ENE	2	16	26	15	0	0	[illegible]
E	2	8	18	8	0	0	3
ESE	0	1	13	20	5	0	3
SE	0	3	22	50	19	12	10
SSE	0	5	25	72	29	6	13
S	0	0	32	56	49	5	14[illegible]
SSW	0	0	11	61	33	10	11[illegible]
SW	1	6	21	24	3	5	6[illegible]
WSW	0	7	34	25	0	2	6[illegible]
W	0	11	26	67	2	13	119
WNW	1	17	40	56	21	3	138
NW	0	15	44	43	5	1	108
NNW	2	9	46	17	0	0	74
VARIABLE	0	0	0	0	0	0	0
TOTAL	14	148	408	562	175	57	1364

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	1	1	5	0	0	0	7
NNE	0	0	2	1	0	0	3
NE	0	1	4	0	0	0	5
ENE	0	0	2	0	0	0	2
E	0	0	1	2	0	0	3
ESE	0	1	4	6	0	0	11
SE	0	1	7	7	0	0	15
SSE	0	2	2	2	0	0	6
S	0	2	0	2	0	0	4
SSW	0	0	4	2	0	0	6
SW	0	0	1	4	0	0	5
WSW	0	0	0	4	0	0	4
W	1	1	6	12	0	2	22
WNW	0	0	5	6	0	0	11
NW	0	1	6	1	0	0	8
NNW	0	1	4	0	0	0	5
VARIABLE	0	0	0	0	0	0	0
TOTAL	2	11	53	49	0	2	117

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: 0

BRAIDWOOD NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 199-30 FT)
WINDS MEASURED AT 203 FEET

WIND DIRECTION	WIND SPEED (in mph) 0.9-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	1	0	6	0	0	0	7
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	1
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	1	0	2	3	0	0	6
SSE	1	1	3	0	0	0	5
S	1	6	0	0	0	0	7
SSW	1	0	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	1	0	0	0	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	1	6	0	0	7
NW	0	0	4	3	0	0	7
NNW	0	0	6	0	0	0	6
VARIABLE	1	0	0	0	0	0	1
TOTAL	8	8	22	12	0	0	50

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: 0

APPENDIX III

1996 REMP SAMPLE RESULTS

BRAIDWOOD

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BRAIDWOOD

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BRAIDWOOD

1.0 INTRODUCTION

The following constitutes the final, 1996 Monthly Progress Report for the Radiological Environmental Monitoring Program conducted at the Braidwood Station, Braceville, 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-95, Nb-95, Ru-103, Ru-106, I-131, Ba-La-140, Cs-134, Cs-137, Ce-141, and Ce-144. 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±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

Sample Type	Location Code	Collection Date	Comments

2.0 LISTING OF MISSED SAMPLES

Sample Type	Location Code	Expected Collection Date	Reason

3.0 LISTING OF SAMPLE ANOMALIES

Sample Type	Location Code	Collection Date	Reason
A/I	BD-20	01-12-96	Volume low; pump malfunction; installed replacement pump.
A/I	BD-21	01-12-96	Volume low; power loss suspected.
A/I	BD-20	01-19-96	Volume low; power loss suspected.
A/I	BD-21	01-26-96	Volume low; power loss suspected.
A/I	BD-03	05-31-96	Volume estimated; timer malfunction; installed new timer.
A/I	BD-21	09-13-96	No electricity. Station Point of Contact observing; will have power restored.
A	BD-20	09-20-96	Pump burned, possibly struck by lightning; replaced.
A	BD-21	09-20-96	Power outage due to lightning.
A/I	BD-19	12-20-96	Volume low; power loss suspected.

A=Air particulate; I=Iodine cartridge

Table 1. Airborne Particulates and Iodine I-131

Collection: Continuous; weekly exchange for the first two quarters of 1996. UREMP started with the third quarter, iodine cartridges are exchanged biweek

Required LLD: Gross Beta = 0.01, I-131 = 0.07 pCi/m^3

Units: 10^{-2} pCi/m^3

BD-03 (C) County Line Road

Date Collected	Volume (m^3)	Gross Beta	I-131	Date Collected	Volume (m^3)	Gross Beta	I-13
01-05-96	274	2.3 ± 0.3; 0.5	2.5 ± 1.7; 1.7	07-05-96	288	2.2 ± 0.3; 0.5	-0.3 ± 2.2
01-12-96	289	3.0 ± 0.3; 0.6	-0.7 ± 1.7; 1.7	07-12-96	285	2.1 ± 0.3; 0.5	-
01-19-96	285	2.5 ± 0.3; 0.5	0.1 ± 1.2; 1.2	07-19-96	280	2.2 ± 0.3; 0.5	0.3 ± 1.6
01-26-96	284	2.5 ± 0.3; 0.6	-0.6 ± 1.5; 1.5	07-26-96	284	1.3 ± 0.3; 0.3	
02-02-96	286	3.2 ± 0.3; 0.7	0.5 ± 1.7; 1.7	08-01-96	238	1.4 ± 0.3; 0.4	0.0 ± 0.7;
02-09-96	284	4.4 ± 0.4; 0.9	-1.4 ± 2.0; 2.0	08-08-96	295	2.0 ± 0.3; 0.5	-
02-16-96	299	1.4 ± 0.3; 0.4	0.2 ± 0.7; 0.7	08-17-96	366	2.2 ± 0.3; 0.5	-0.1 ± 0.5;
02-23-96	273	2.1 ± 0.3; 0.5	-0.4 ± 0.7; 0.7	08-23-96	231	2.4 ± 0.4; 0.6	-
03-01-96	287	1.8 ± 0.3; 0.4	-0.5 ± 1.7; 1.7	08-30-96	516	1.4 ± 0.2; 0.3	0.0 ± 0.4;
03-08-96	284	2.2 ± 0.3; 0.5	-0.3 ± 1.0; 1.0	09-05-96	257	1.3 ± 0.3; 0.4	-
03-15-96	285	2.6 ± 0.3; 0.6	0.2 ± 0.9; 0.9	09-13-96	313	2.3 ± 0.3; 0.5	-0.2 ± 0.4;
03-22-96	283	1.8 ± 0.3; 0.4	0.6 ± 0.6; 0.6	09-20-96	289	1.9 ± 0.3; 0.4	-
03-29-96	288	2.2 ± 0.3; 0.5	0.7 ± 1.0; 1.0	09-27-96	288	2.9 ± 0.3; 0.6	-0.2 ± 0.4;
1st Qtr. Mean±s.d.		2.5±0.7	0.1±1.0	3rd Qtr. Mean±s.d.		2.0±0.5	-0.1±0.2
04-05-96	282	2.3 ± 0.3; 0.5	0.7 ± 1.5; 1.5	10-04-96	280	2.4 ± 0.3; 0.5	-
04-12-96	281	2.2 ± 0.3; 0.5	0.5 ± 1.6; 1.6	10-11-96	283	1.7 ± 0.3; 0.4	-0.0 ± 0.8; 0.
04-19-96	272	1.5 ± 0.3; 0.4	0.6 ± 1.2; 1.2	10-18-96	287	2.8 ± 0.3; 0.6	-
04-26-96	278	1.6 ± 0.3; 0.4	1.3 ± 1.5; 1.5	10-25-96	280	2.2 ± 0.3; 0.5	0.6 ± 0.7; 0.
05-03-96	277	1.8 ± 0.3; 0.5	0.1 ± 1.4; 1.4	11-01-96	291	2.4 ± 0.3; 0.5	-
05-10-96	280	1.4 ± 0.3; 0.4	-1.6 ± 1.3; 1.3	11-08-96	287	2.3 ± 0.3; 0.5	0.1 ± 0.5; 0.5
05-17-96	284	1.7 ± 0.3; 0.4	-0.4 ± 1.3; 1.3	11-15-96	300	2.0 ± 0.3; 0.5	-
05-24-96	286	2.3 ± 0.3; 0.5	-0.0 ± 0.7; 0.7	11-22-96	270	2.1 ± 0.3; 0.5	-0.6 ± 0.7; 0.7
05-31-96	284*	1.4 ± 0.3; 0.4	-1.4 ± 1.4; 1.4	11-29-96	296	2.5 ± 0.3; 0.5	-
06-07-96	288	1.2 ± 0.3; 0.3	0.8 ± 1.2; 1.2	12-06-96	275	2.3 ± 0.3; 0.5	-0.1 ± 0.8; 0.8
06-14-96	285	1.0 ± 0.3; 0.3	-0.7 ± 1.8; 1.8	12-13-96	283	2.3 ± 0.3; 0.5	-
06-21-96	299	1.8 ± 0.3; 0.4	0.1 ± 1.1; 1.1	12-[illegible]-96	286	3.0 ± 0.3; 0.6	0.2 ± 0.7; 0.7
06-28-96	269	2.3 ± 0.3; 0.5	-0.3 ± 0.7; 0.7	12-27-96	287	2.4 ± 0.4; 0.6	-
2nd Qtr. Mean±s.d.		1.7±0.4	-0.0±0.8	4th Qtr. Mean±s.d.		2.3±0.3	0.0±0.4

*Volume estimated; timer malfunction; installed new timer.

Table 1. Airborne Particulates and Iodine I-131

Collection: Continuous; weekly exchange for the first two quarters of 1996. UREMP started with the third quarter, iodine cartridges are exchanged biweekly.

Required LLD: Gross Beta = 0.01, I-131 = 0.07 pCi/m^3

Units: 10^{-3} pCi/m^3

BD-06 Godley

Date Collected	Volume (m^3)	Gross Beta	I-131	Date Collected	Volume (m^3)	Gross Beta	I-131
01-05-96	280	2.3 ± 0.3; 0.5	-0.1 ± 0.7; 0.7	07-05-96	288	2.5 ± 0.3; 0.6	-1.7 ± 2.0; 2.0
01-12-96	289	2.9 ± 0.3; 0.6	-0.6 ± 1.5; 1.5	07-12-96	285	2.2 ± 0.3; 0.5	-
01-19-96	285	2.5 ± 0.3; 0.6	0.3 ± 1.4; 1.4	07-19-96	282	2.1 ± 0.3; 0.5	-1.8 ± 1.4; 1.4
01-26-96	285	2.2 ± 0.3; 0.5	0.3 ± 1.3; 1.3	07-26-96	284	1.4 ± 0.3; 0.4	-
02-02-96	286	2.9 ± 0.3; 0.6	-1.0 ± 1.3; 1.3	08-01-96	240	1.5 ± 0.3; 0.4	-0.5 ± 0.7; 0.7
02-09-96	284	3.2 ± 0.4; 0.7	-0.1 ± 1.8; 1.8	08-08-96	300	2.4 ± 0.3; 0.5	-
02-16-96	299	1.7 ± 0.3; 0.4	0.5 ± 1.4; 1.4	08-17-96	364	2.1 ± 0.3; 0.5	-0.1 ± 0.3; 0.3
02-23-96	273	2.0 ± 0.3; 0.5	0.2 ± 1.0; 1.0	08-23-96	231	2.8 ± 0.4; 0.6	-
03-01-96	286	2.2 ± 0.3; 0.5	0.1 ± 1.5; 1.5	08-30-96	516	1.4 ± 0.2; 0.3	-0.4 ± 1.2; 1.2
03-08-96	284	2.0 ± 0.3; 0.5	-0.5 ± 1.1; 1.1	09-05-96	260	1.3 ± 0.3; 0.4	-
03-15-96	285	2.8 ± 0.3; 0.6	0.2 ± 2.0; 2.0	09-13-96	314	1.2 ± 0.3; 0.3	-0.2 ± 0.7; 0.7
03-22-96	285	1.7 ± 0.3; 0.4	-1.1 ± 1.2; 1.2	09-20-96	289	1.9 ± 0.3; 0.5	-
03-29-96	288	2.3 ± 0.3; 0.5	-0.2 ± 1.7; 1.7	09-27-96	286	3.2 ± 0.3; 0.7	-0.1 ± 0.6; 0.6
1st Qtr. Mean±s.d.		2.4±0.5	-0.2±0.5	3rd Qtr. Mean±s.d.		2.0±0.6	-0.7±0.7
04-05-96	282	2.1 ± 0.3; 0.5	-0.1 ± 1.4; 1.4	10-04-96	281	2.4 ± 0.3; 0.5	-
04-12-96	287	1.9 ± 0.3; 0.4	1.0 ± 1.3; 1.3	10-11-96	286	1.9 ± 0.3; 0.5	-0.3 ± 0.9, 0.9
04-19-96	285	1.6 ± 0.3; 0.4	-0.6 ± 1.4; 1.4	10-18-96	289	2.7 ± 0.3; 0.6	-
04-26-96	285	1.3 ± 0.3; 0.4	0.7 ± 1.3; 1.3	10-25-96	282	2.0 ± 0.3; 0.5	-0.4 ± 0.8; 0.8
05-03-96	286	1.9 ± 0.3; 0.5	-0.5 ± 1.3; 1.3	11-01-96	290	2.9 ± 0.3; 0.6	-
05-10-96	285	1.8 ± 0.3; 0.4	-0.4 ± 1.2; 1.2	11-08-96	287	2.4 ± 0.3; 0.5	-0.5 ± 0.6; 0.6
05-17-96	283	1.6 ± 0.3; 0.4	0.9 ± 1.7; 1.7	11-15-96	300	2.2 ± 0.3, 0.5	-
05-24-96	286	2.0 ± 0.3; 0.5	0.4 ± 1.9; 1.9	11-22-96	275	2.2 ± 0.3; 0.5	-0.3 ± 0.7; 0.7
05-31-96	284	1.3 ± 0.3; 0.4	-1.4 ± 1.7; 1.7	11-29-96	296	3.1 ± 0.3; 0.7	-
06-07-96	288	1.3 ± 0.3; 0.4	-1.5 ± 1.7; 1.8	12-06-96	275	2.5 ± 0.3; 0.6	-1.3 ± 0.8; 0.9
06-14-96	285	1.1 ± 0.3; 0.3	-0.1 ± 1.4; 1.4	12-13-96	283	2.6 ± 0.3; 0.6	-
06-21-96	294	2.1 ± 0.3; 0.5	0.2 ± 0.5; 0.5	12-20-96	291	3.4 ± 0.3; 0.7	-0.1 ± 0.7; 0.7
06-28-96	268	2.1 ± 0.3; 0.5	-0.2 ± 1.2; 1.2	12-27-96	287	2.5 ± 0.4; 0.6	-
2nd Qtr. Mean±s.d.		1.7±0.4	-0.1±0.8	4th Qtr. Mean±s.d.		2.5±0.4	-0.5±0.4

Table 1. Airborne Particulates and Iodine I-131

Collection: Continuous; weekly exchange for the first two quarters of 1996. UREMP started with the third quarter, iodine cartridges are exchanged biweekly

Required LLD: Gross Beta = 0.01, I-131 = 0.07 pCi/m^3

Units: 10^{-2} pCi/m^3

BD-19 Nearsite, NW

Date Collected	Volume (m^3)	Gross Beta	I-131	Date Collected	Volume (m^3)	Gross Beta	I-131
01-05-96	280	2.9 ± 0.4; 0.6	1.0 ± 1.9; 1.9	07-05-96	286	2.3 ± 0.3; 0.5	-0.0 ± 2.0; 2.
01-12-96	289	2.9 ± 0.3; 0.6	0.6 ± 1.7; 1.7	07-12-96	287	2.2 ± 0.3; 0.5	-
01-19-96	284	2.1 ± 0.3; 0.5	-1.1 ± 1.4; 1.4	07-19-96	287	2.2 ± 0.3; 0.5	0.4 ± 1.3; 1.
01-26-96	285	1.7 ± 0.3; 0.4	0.7 ± 1.1; 1.1	07-26-96	281	1.6 ± 0.3; 0.4	-
02-02-96	286	3.4 ± 0.3; 0.7	-0.1 ± 1.1; 1.1	08-01-96	239	1.8 ± 0.3; 0.5	0.8 ± 0.7; 0.7
02-09-96	284	2.9 ± 0.3; 0.6	-0.5 ± 1.1; 1.1	08-08-96	299	2.3 ± 0.3; 0.5	-
02-16-96	299	2.0 ± 0.3; 0.4	-0.2 ± 0.7; 0.7	08-17-96	361	2.0 ± 0.3; 0.4	0.2 ± 0.4; 0.4
02-23-96	273	1.8 ± 0.3; 0.4	-0.1 ± 0.7; 0.7	08-23-96	230	3.0 ± 0.4; 0.7	-
03-01-96	285	2.1 ± 0.3; 0.5	0.4 ± 1.4; 1.4	08-30-96	508	1.3 ± 0.2; 0.3	-0.3 ± 0.8; 0.8
03-08-96	285	2.0 ± 0.3; 0.5	0.3 ± 1.1; 1.1	09-05-96	256	1.3 ± 0.3; 4	-
03-15-96	286	2.6 ± 0.3; 0.6	0.2 ± 1.1; 1.1	09-13-96	316	2.8 ± 0.3; 0.6	-0.2 ± 0.3; 0.3
03-22-96	285	1.7 ± 0.3; 0.4	0.1 ± 1.5; 1.5	09-20-96	281	2.0 ± 0.3; 0.5	-
03-29-96	288	2.3 ± 0.3; 0.5	1.4 ± 1.3; 1.4	09-27-96	288	3.2 ± 0.3; 0.7	-0.1 ± 0.8; 0.8
1st Qtr. Mean±s.d.		2.3±0.5	0.2±0.6	3rd Qtr. Mean±s.d.		2.2±0.6	0.1±0.4
04-05-96	282	2.2 ± 0.3; 0.5	1.3 ± 1.2; 1.2	10-04-96	274	2.4 ± 0.3; 0.5	-
04-12-96	282	2.4 ± 0.3; 0.5	0.9 ± 1.3; 1.3	10-11-96	282	1.8 ± 0.3; 0.5	0.1 ± 0.9; 0.9
04-19-96	285	1.4 ± 0.3; 0.4	-0.1 ± 1.6; 1.6	10-18-96	285	3.0 ± 0.4; 0.6	-
04-26-96	285	1.5 ± 0.3; 0.4	1.5 ± 1.1; 1.2	10-25-96	280	2.2 ± 0.3; 0.5	-0.2 ± 0.8; 0.8
05-03-96	291	1.5 ± 0.3; 0.4	0.1 ± 1.4; 1.4	11-01-96	286	2.9 ± 0.3; 0.6	-
05-10-96	286	1.4 ± 0.3; 0.4	1.5 ± 1.1; 1.2	11-08-96	286	2.6 ± 0.3; 0.6	0.1 ± 0.7; 0.7
05-17-96	283	1.9 ± 0.3; 0.5	0.2 ± 1.3; 1.3	11-15-96	299	2.3 ± 0.3; 0.5	-
05-24-96	285	2.1 ± 0.3; 0.5	-0.9 ± 1.6; 1.6	11-22-96	267	2.4 ± 0.3; 0.5	-0.4 ± 0.8; 0.8
05-31-96	289	1.5 ± 0.3; 0.4	0.1 ± 0.9; 0.9	11-29-96	293	3.2 ± 0.3; 0.7	-
06-07-96	290	1.3 ± 0.3; 0.4	-0.3 ± 1.7; 1.7	12-06-96	272	2.0 ± 0.3; 0.5	-0.2 ± 0.7; 0.7
06-14-96	285	1.0 ± 0.3; 0.3	0.6 ± 1.7; 1.7	12-13-96	279	3.0 ± 0.3; 0.6	-
06-21-96	299	2.0 ± 0.3; 0.5	0.3 ± 1.1; 1.1	12-20-96	249	4.2 ± 0.4; 0.9	0.2 ± 0.7; 0.7
06-28-96	267	2.2 ± 0.3; 0.5	0.2 ± 0.7; 0.7	12-27-96	287	2.4 ± 0.4; 0.6	-
2nd Qtr. Mean±s.d.		1.7±0.4	0.4±0.7	4th Qtr. Mean±s.d.		2.6±0.6	-0.1±0.2

Table 1. Airborne Particulates and Iodine I-131

Collection: Continuous; weekly exchange for the first two quarters of 1996. UREMP started with the third quarter, iodine cartridges are exchanged biweekly.

Required LLD: Gross Beta = 0.01, I-131 = 0.07 pCi/m^3

Units: 10^{-3} pCi/m^3

BD-20 Nearsite, N

Date Collected	Volume (m^3)	Gross Beta	I-131	Date Collected	Volume (m^3)	Gross Beta	I-131
01-05-96	280	2.6 ± 0.3; 0.6	0.7 ± 1.0; 1.0	07-05-96	285	2.0 ± 0.3; 0.5	0.8 ± 1.7; 1.7
01-12-96	259[a]	2.9 ± 0.4; 0.6	0.3 ± 1.9; 1.9	07-12-96	286	2.1 ± 0.3; 0.5	-
01-19-96	232[b]	1.8 ± 0.3; 0.5	-0.9 ± 1.6; 1.6	07-19-96	287	2.1 ± 0.3; 0.5	0.5 ± 1.3; 1.3
01-26-96	285	2.2 ± 0.3; 0.5	-0.7 ± 1.5; 1.5	07-26-96	285	1.5 ± 0.3; 0.4	-
02-02-96	286	3.4 ± 0.3; 0.7	-0.0 ± 0.8; 0.8	08-01-96	244	1.6 ± 0.3; 0.4	-0.2 ± 0.7; 0.7
02-09-96	284	2.9 ± 0.3; 0.6	0.3 ± 1.0; 1.0	08-08-96	295	2.1 ± 0.3; 0.5	-
02-16-96	299	1.8 ± 0.3; 0.4	0.1 ± 1.0; 1.0	08-17-96	366	1.8 ± 0.2; 0.4	-0.2 ± 0.4; 0.4
02-23-96	273	2.0 ± 0.3; 0.5	-0.2 ± 0.7; 0.7	08-23-96	231	2.6 ± 0.4; 0.6	-
03-01-96	286	2.2 ± 0.3; 0.5	0.4 ± 1.5; 1.5	08-30-96	516	1.4 ± 0.2; 0.3	0.1 ± 0.4; 0.4
03-08-96	284	2.2 ± 0.3; 0.5	-0.1 ± 1.1; 1.1	09-05-96	257	1.3 ± 0.3; 0.4	-
03-15-96	285	2.5 ± 0.3; 0.5	-0.6 ± 1.9; 1.9	09-13-96	312	0.7 ± 0.2; 0.3	-0.2 ± 0.6; 0.7
03-22-96	285	1.9 ± 0.3; 0.4	-0.2 ± 0.7; 0.7	09-20-96	168[a]	2.6 ± 0.5; 0.7	-
03-29-96	288	2.2 ± 0.3; 0.5	1.4 ± 1.5; 1.5	09-27-96	288	3.0 ± 0.3; 0.6	0.1 ± 1.0; 1.0
1st Qtr. Mean±s.d.		2.3±0.5	0.0±0.6	3rd Qtr. Mean±s.d.		1.9±0.6	0.1±0.4
04-05-96	281	2.2 ± 0.3; 0.5	-0.6 ± 0.6; 0.6	10-04-96	280	2.4 ± 0.3; 0.5	-
04-12-96	287	2.0 ± 0.3; 0.5	0.1 ± 1.6; 1.6	10-11-96	276	1.4 ± 0.3; 0.4	-0.2 ± 0.9; 0.9
04-19-96	285	1.5 ± 0.3; 0.4	-1.0 ± 1.6; 1.6	10-18-96	288	3.2 ± 0.4; 0.7	-
04-26-96	285	1.5 ± 0.3; 0.4	-0.0 ± 1.5; 1.5	10-25-96	282	2.3 ± 0.3; 0.5	-0.4 ± 0.8; 0.8
05-03-96	286	1.6 ± 0.3; 0.4	0.2 ± 1.6; 1.6	11-01-96	290	2.9 ± 0.3; 0.6	-
05-10-96	286	1.8 ± 0.3; 0.4	0.6 ± 1.3; 1.3	11-08-96	287	2.4 ± 0.3; 0.5	-0.2 ± 0.9; 0.9
05-17-96	283	1.6 ± 0.3; 0.4	-1.0 ± 1.7; 1.7	11-15-96	300	2.1 ± 0.3; 0.5	-
05-24-96	285	2.3 ± 0.3; 0.5	-0.2 ± 2.2; 2.2	11-22-96	270	2.2 ± 0.3; 0.5	0.4 ± 0.7; 0.7
05-31-96	284	1.6 ± 0.3; 0.4	-0.6 ± 1.2; 1.2	11-29-96	296	3.0 ± 0.3; 0.6	-
06-07-96	287	1.0 ± 0.3; 0.3	0.7 ± 1.6; 1.6	12-06-96	275	2.4 ± 0.3; 0.5	0.1 ± 0.7; 0.7
06-14-96	283	0.9 ± 0.3; 0.3	-0.9 ± 0.9; 0.9	12-13-96	284	3.0 ± 0.3; 0.6	-
06-21-96	299	1.8 ± 0.3; 0.4	0.8 ± 1.3; 1.3	12-20-96	290	3.4 ± 0.3; 0.7	0.1 ± 0.8; 0.8
06-28-96	266	2.1 ± 0.3; 0.5	0.4 ± 1.3; 1.3	12-27-96	287	2.4 ± 0.4; 0.6	-
2nd Qtr. Mean±s.d.		1.7±0.4	-0.1±0.7	4th Qtr. Mean±s.d.		2.5±0.5	-0.0±0.3

[a] Volume low; pump malfunction; installed replacement pump.

[b] Volume low; power loss suspected.

Table 1. Airborne Particulates and Iodine I-131

Collection: Continuous; weekly exchange for the first two quarters of 1996. UREMP started with the third quarter, iodine cartridges are exchanged biweekly.

Required LLD: Gross Beta = 0.01, I-131 = 0.07 pCi/m^3

Units: 10^{-2} pCi/m^3

BD-21 Nearsite, NE

Date Collected	Volume (m^3)	Gross Beta	I-131	Date Collected	Volume (m^3)	Gross Beta	I-131
01-05-96	280	2.3 ± 0.3; 0.5	0.9 ± 1.5; 1.5	07-05-96	283	2.[illegible] ± 0.[illegible].5	-0.9 ± 2.2; 2.2
01-12-96	259[a]	2.9 ± 0.4; 0.6	0.4 ± 1.7; 1.7	07-12-96	286	[illegible], 0.5	-
01-19-96	284	2.0 ± 0.3; 0.5	0.7 ± 1.3; 1.3	07-19-96	287	2.[illegible] ± 0.3; 0.5	1.4 ± 1.4; 1.4
01-26-96	225[a]	3.1 ± 0.4; 0.7	-1.3 ± 1.9; 1.9	07-26-96	284	1.4 ± 0.3; 0.4	-
02-02-96	281	3.5 ± 0.4; 0.7	-0.2 ± 1.0; 1.0	08-01-96	244	1.8 ± 0.3; 0.5	0.4 ± 0.6; 0.6
02-09-96	284	2.8 ± 0.3; 0.6	0.2 ± 1.7; 1.7	08-08-96	300	2.4 ± 0.3; 0.5	-
02-16-96	299	1.5 ± 0.3; 0.4	0.1 ± 0.9; 0.9	08-17-96	366	2.5 ± 0.3; 0.5	-0.0 ± 0.5; 0.5
02-23-96	269	2.1 ± 0.3; 0.5	-0.3 ± 1.3; 1.3	08-23-96	230	2.9 ± 0.4; 0.7	-
03-01-96	284	1.8 ± 0.3; 0.4	0.5 ± 1.5; 1.5	08-30-96	515	1.4 ± 0.2; 0.3	-0.1 ± 0.7; 0.7
03-08-96	286	2.3 ± 0.3; 0.5	-0.3 ± 1.0; 1.0	09-05-96	256	1.3 ± 0.3; 0.4	-
03-15-96	285	2.8 ± 0.3; 0.6	-0.2 ± 1.4; 1.4	09-13-96	56[b]	14.0 ± 1.8; 3.1	0.2 ± 0.6; 0.6
03-22-96	285	2.2 ± 0.3; 0.5	-1.1 ± 1.7; 1.7	09-20-96	237	2.1 ± 0.4; 0.5	-
03-29-96	288	2.3 ± 0.3; 0.5	0.1 ± 1.7; 1.7	09-27-96	288	2.8 ± 0.3; 0.6	0.2 ± 0.9; 0.9
1st Qtr. Mean±s.d.		2.4±0.6	-0.0±0.7	3rd Qtr. Mean±s.d.		3.0±3.3	0.2±0.7
04-05-96	282	2.1 ± 0.3; 0.5	-0.0 ± 1.3; 1.3	10-04-96	280	2.7 ± 0.3; 0.6	-
04-12-96	277	2.1 ± 0.3; 0.5	-0.7 ± 0.7; 0.7	10-11-96	280	1.9 ± 0.3, 0.5	-0.6 ± 0.8, 0.8
04-19-96	285	1.5 ± 0.3; 0.4	-0.3 ± 1.2; 1.2	10-18-96	290	3.3 ± 0.4; 0.7	-
04-26-96	285	1.5 ± 0.3; 0.4	0.2 ± 1.4; 1.4	10-25-96	282	2.4 ± 0.3; 0.5	-0.2 ± 0.8; 0.8
05-03-96	291	1.6 ± 0.3; 0.4	-1.1 ± 1.6; 1.6	11-01-96	290	2.6 ± 0.3; 0.6	-
05-10-96	286	1.4 ± 0.3; 0.4	0.2 ± 1.2; 1.2	11-08-96	287	2.7 ± 0.3; 0.6	0.4 ± 0.8; 0.8
05-17-96	279	1.7 ± 0.3; 0.4	0.2 ± 2.0; 2.0	11-15-96	300	2.1 ± 0.3; 0.5	-
05-24-96	286	2.1 ± 0.3; 0.5	1.0 ± 1.7; 1.7	11-22-96	270	2.6 ± 0.4; 0.6	0.3 ± 0.9; 0.9
05-31-96	280	1.5 ± 0.3; 0.4	0.1 ± 1.4; 1.4	11-29-96	296	3.0 ± 0.3; 0.6	-
06-07-96	291	1.2 ± 0.3; 0.3	1.1 ± 1.6; 1.6	12-06-96	275	2.7 ± 0.3; 0.6	0.5 ± 0.7; 0.7
06-14-96	280	1.0 ± 0.3; 0.3	0.9 ± 1.9; 1.9	12-13-96	289	2.7 ± 0.3; 0.6	-
06-21-96	293	2.0 ± 0.3; 0.5	-0.1 ± 0.7; 0.7	12-20-96	275	3.4 ± 0.4; 0.7	0.6 ± 0.7; 0.8
06-28-96	265	1.9 ± 0.3; 0.5	0.1 ± 1.5; 1.5	12-27-96	287	2.3 ± 0.4; 0.5	-
2nd Qtr. Mean±s.d.		1.7±0.4	0.1±0.6	4th Qtr. Mean±s.d.		2.6±0.4	0.2±0.4

[a] Volume low; power loss suspected.

[b] Volume low; power loss suspected; result not used in figuring quarterly mean.

Table 2. Airborne Particulates
Collection: Quarterly composites of weekly collections
Required LLD: Cs-134 = 0.01, Cs-137 = 0.01 pCi/m^3
Units: 10^{-4} pCi/m^3

Sample Description and Concentration

BD-03 (C) County Line Road

1996 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BDAP-2556	BDAP-5039	BDAP-7548	BDAP-9837
Volume	3,701	3,665	3,9[illegible]0	3,133
Mn-54	0.4 ± 4.0; 4.0	-0.7 ± 2.5; 2.5	2.4 ± 4.9; 4.9	0.7 ± 9.0; 9.0
Fe-59	5.3 ± 11.4; 11.4	0.4 ± 9.5; 9.5	-6.5 ± 16.0; 16.0	-14.7 ± 65.4; 65.5
Co-58	-2.3 ± 4.9; 4.9	-1.7 ± 4.2; 4.2	4.7 ± 5.6; 5.7	6.1 ± 9.7; 9.7
Co-60	-0.9 ± 5.6; 5.6	0.9 ± 2.8; 2.8	-3.7 ± 5.1; 5.1	-1.7 ± 8.2; 8.2
Zn-65	-11.1 ± 11.5; 11.7	-0.5 ± 5.7; 5.7	-1.1 ± 11.6; 11.6	-13.7 ± 20.0; 20.1
Zr-Nb-95	-1.6 ± 0.0; 0.3	0.9 ± 7.0; 7.0	1.6 ± 10.1; 10.1	-9.2 ± 26.7; 2[illegible].8
Cs-134	1.6 ± 4.8; 4.8	2.0 ± 3.1; 3.1	0.9 ± 4.6; 4.6	0.4 ± 0.8; 0.8
Cs-137	1.3 ± 3.7; 3.7	0.3 ± 3.1; 3.1	1.6 ± 4.8; 4.8	-0.9 ± 7.8; 7.8
Ba-La-140	-45.9 ± 31.2; 32.3	-1.9 ± 30.3; 30.3	-18.8 ± 36.8; 37.0	-4.4 ± 23.1; 23.1

BD-06 Godley

1996 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BDAP-2557	BDAP-5040	BDAP-7549	BDAP-9838
Volume	3,709	3,698	3,939	3,145
Mn-54	2.4 ± 3.6; 3.6	-0.8 ± 4.4; 4.4	-3.2 ± 5.1; 5.2	4.3 ± 5.4; 5.5
Fe-59	-4.1 ± 9.6; 9.6	-6.1 ± 12.7; 12.7	-3.6 ± 13.7; 13.7	-11.0 ± 15.2; 15.3
Co-58	0.3 ± 3.8; 3.8	-0.4 ± 5.2; 5.2	-5.1 ± 6.6; 6.6	4.1 ± 5.9; 6.0
Co-60	1.1 ± 3.6; 3.6	-3.0 ± 4.4; 4.4	1.6 ± 5.1; 5.1	4.2 ± 47.7; 47.7
Zn-65	1.0 ± 5.4; 5.4	1.2 ± 9.7; 9.7	5.4 ± 10.8; 10.8	-9.0 ± 10.8; 10.9
Zr-Nb-95	4.6 ± 8.0; 8.0	0.7 ± 10.3; 10.3	-4.8 ± 9.3; 9.4	-3.0 ± 10.3; 10.3
Cs-134	0.5 ± 4.0; 4.0	0.2 ± 4.3; 4.3	-2.9 ± 5.3; 5.3	-0.4 ± 5.9; 5.9
Cs-137	1.3 ± 4.0; 4.0	0.1 ± 4.3; 4.3	2.1 ± 4.6; 4.6	-5.9 ± 5.1; 5.2
Ba-La-140	26.2 ± 17.3; 17.9	4.0 ± 40.5; 40.5	43.4 ± 26.9; 28.0	-8.0 ± 29.8; 29.8

Table 2. Airborne Particulates
Collection: Quarterly composites of weekly collections
Required LLD: Cs-134 = 0.01, Cs-137 = 0.01 pCi/m^3
Units: 10^{-4} pCi/m^3

Sample Description and Concentration

BD-19 Nearsite, NW

1996 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BDAP-2558	BDAP-5041	BDAP-7550	BDAP-9839
Volume	3,709	3,709	3,919	3,104
Mn-54	-0.8 ± 4.9; 4.9	-1.8 ± 3.1; 3.1	1.6 ± 4.8; 4.8	0.4 ± 4.7; 4.7
Fe-59	-4.3 ± 11.2; 11.2	-3.6 ± 8.6; 8.6	6.6 ± 15.8; 15.8	-3.4 ± 23.8; 23.8
Co-58	-1.9 ± 6.0; 6.0	0.7 ± 4.0; 4.0	0.9 ± 6.2; 6.2	-0.9 ± 6.3; 6.3
Co-60	1.6 ± 4.0; 4.0	-0.7 ± 3.8; 3.8	6.7 ± 5.5; 5.[illegible]	0.9 ± 3.1; 3.1
Zn-65	4.2 ± 12.3; 12.3	1.9 ± 6.2; 6.2	3.8 ± 9.3; 9.3	5.3 ± 9.9; 9.9
Zr-Nb-95	-1.9 ± 7.3; 7.3	-0.3 ± 7.0; 7.0	-1.2 ± 9.1; 9.1	1.2 ± 9.7; 9.7
Cs-134	1.6 ± 4.3; 4.3	-1.8 ± 4.1; 4.1	1.7 ± 5.1; 5.1	-0.2 ± 0.5; 0.5
Cs-137	1.0 ± 4.7; 4.7	-0.2 ± 3.1; 3.1	-2.5 ± 4.6; 4.6	0.8 ± 5.6; 5.6
Ba-La-140	2.4 ± 32.5; 32.5	11.5 ± 22.2; 22.3	-14.6 ± 38.3; 38.4	-5.9 ± 26.8; 26.8

BD-20 Nearsite, N

1996 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BDAP-2559	BDAP-5042	BDAP-7551	BDAP-9840
Volume	3,626	3,697	3,820	3,129
Mn-54	1.2 ± 3.6; 3.6	-1.2 ± 5.3; 5.3	3.1 ± 4.1; 4.2	5.6 ± 5.2; 5.3
Fe-59	-11.7 ± 10.8; 11.0	-10.4 ± 17.5; 17.6	-2.3 ± 14.5; 14.5	0.9 ± 10.6; 10.6
Co-58	0.5 ± 5.4; 5.4	-2.5 ± 6.3; 6.3	8.3 ± 5.1; 5.3	-2.0 ± 5.5; 5.5
Co-60	1.7 ± 5.6; 5.6	4.5 ± 5.6; 5.6	6.8 ± 4.5; 4.7	4.3 ± 97.0; 97.0
Zn-65	-1.3 ± 8.9; 8.9	-3.3 ± 9.3; 9.3	5.0 ± 9.8; 9.9	-8.7 ± 10.1; 10.2
Zr-Nb-95	-1.0 ± 8.0; 8.0	-3.0 ± 8.2; 8.2	-4.9 ± 10.0; 10.0	0.8 ± 8.3; 8.3
Cs-134	0.6 ± 4.9; 4.9	-1.3 ± 5.0; 5.0	-1.4 ± 4.7; 4.7	-1.7 ± 3.6; 3.6
Cs-137	5.2 ± 4.0; 4.1	3.2 ± 4.1; 4.1	0.4 ± 5.4; 5.4	-3.1 ± 4.9; 4.9
Ba-La-140	1.6 ± 26.7; 26.7	-66.2 ± 53.0; 54.3	-11.3 ± 34.3; 34.4	6.9 ± 26.0; 26.0

Table 2. Airborne Particulates
Collection: Quarterly composites of weekly collections
Required LLD: Cs-134 = 0.01, Cs-137 = 0.01 pCi/m^3
Units: 10^{-4} pCi/m^3

Sample Description and Concentration

BD-21 Nearsite, NE

1996 Collection Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	BDAP-2560	BDAP-5043	BDAP-7552	BDAP-9841
Volume	3,609	3,680	3,632	3,140
Mn-54	-3.6 ± 3.6; 3.6	5.2 ± 4.2; 4.3	3.5 ± 5.4; 5.5	0.5 ± 4.6; 4.6
Fe-59	-10.4 ± 9.0; 9.2	7.2 ± 12.0; 12.1	20.5 ± 14.8; 15.2	-3.6 ± 6.1; 6.1
Co-58	-3.7 ± 5.0; 5.0	2.4 ± 5.0; 5.0	3.3 ± 6.7; 6.7	0.6 ± 7.8; 7.8
Co-60	0.8 ± 4.3; 4.3	3.8 ± 5.2; 5.3	3.4 ± 4.6; 4.6	0.6 ± 0.5; 0.5
Zn-65	-1.3 ± 7.5; 7.5	15.9 ± 8.3; 8.8	13.5 ± 11.8; 12.0	4.5 ± 9.8; 9.8
Zr-Nb-95	-0.8 ± 5.2; 5.2	0.1 ± 7.7; 7.7	3.9 ± 10.6; 10.6	-0.6 ± 14.3; 14.3
Cs-134	2.6 ± 4.0; 4.1	0.4 ± 4.9; 4.9	2.9 ± 5.0; 5.0	1.5 ± 45.6; 45.6
Cs-137	-0.9 ± 3.4; 3.4	-0.6 ± 4.2; 4.2	1.8 ± 4.9; 4.9	1.2 ± 5.8; 5.8
Ba-La-140	21.2 ± 31.0; 31.2	-13.7 ± 28.6; 28.7	6.4 ± 33.9; 33.9	-41.7 ± 52.5; 53.0

Table 3. Milk

Collection: Biweekly (May - October)
Monthly (November - April)

Required LLD: 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

Units: pCi/L

Sample Description and Concentration

BD-17 Halpin's Dairy

Date Collected	01-05-96	02-02-96	03-02-96	04-05-96
Lab Code	BDMI-69	BDMI-520	BDMI-967	BDMI-1884
I-131	-0.02 ± 0.15; 0.15	-0.13 ± 0.19; 0.19	0.16 ± 0.25; 0.25	-0.13 ± 0.22; 0.22
Mn-54	-0.4 ± 3.3; 3.3	-2.0 ± 2.9; 2.9	0.4 ± 3.5; 3.5	0.1 ± 2.4; 2.4
Fe-59	-0.6 ± 9.9; 9.9	-3.5 ± 7.6; 7.6	-0.3 ± 7.9; 7.9	-0.5 ± 4.8; 4.8
Co-58	-1.7 ± 3.1; 3.1	-0.4 ± 3.3; 3.3	-0.4 ± 3.1; 3.1	0.5 ± 2.5; 2.5
Co-60	-2.1 ± 4.2; 4.2	2.5 ± 5.1; 5.1	-2.7 ± 5.2; 5.2	0.2 ± 2.8; 2.8
Zn-65	-4.2 ± 9.0; 9.0	-7.0 ± 7.7; 7.8	-3.5 ± 8.4; 8.4	-2.4 ± 5.6; 5.6
Zr-Nb-95	-1.3 ± 4.1; 4.1	0.2 ± 3.5; 3.5	-0.7 ± 3.5; 3.5	1.7 ± 2.5; 2.5
Cs-134	-1.0 ± 3.8; 3.8	-3.3 ± 3.3; 3.3	-1.2 ± 3.5; 3.5	-0.8 ± 2.9; 2.9
Cs-137	0.6 ± 3.5; 3.5	-0.6 ± 3.8; 3.8	5.7 ± 3.6; 3.7	1.3 ± 2.7; 2.7
Ba-La-140	4.3 ± 7.2; 7.2	-1.1 ± 4.8; 4.8	3.6 ± 3.6; 3.6	-0.7 ± 4.7; 4.7

Date Collected	05-03-96	05-17-96	05-31-96	06-14-96
Lab Code	BDMI-2742,3	BDMI-3098	BDMI-3445	BDMI-3773,4
I-131	0.11 ± 0.17; 0.17	-0.02 ± 0.22; 0.22	-1.06 ± 0.40; 0.43	0.02 ± 0.28; 0.28
Mn-54	0.4 ± 1.5; 1.5	-1.4 ± 3.3; 3.3	-0.4 ± 2.4; 2.4	0.3 ± 1.8; 1.8
Fe-59	-2.6 ± 3.8; 3.8	-4.0 ± 7.7; 7.7	-3.3 ± 5.0; 5.1	-0.1 ± 3.9; 3.9
Co-58	0.1 ± 1.6; 1.6	-4.0 ± 3.1; 3.1	-0.2 ± 2.4; 2.4	0.0 ± 1.7; 1.7
Co-60	-0.7 ± 2.1; 2.1	-5.9 ± 5.0; 5.1	0.4 ± 3.2; 3.2	1.9 ± 2.2; 2.2
Zn-65	-0.2 ± 4.3; 4.3	-0.2 ± 8.7; 8.7	-1.4 ± 5.4; 5.4	-2.0 ± 4.2; 4.2
Zr-Nb-95	-1.1 ± 1.7; 1.7	0.7 ± 3.8; 3.8	-0.1 ± 2.5; 2.5	0.9 ± 1.7; 1.7
Cs-134	0.2 ± 1.7; 1.7	-0.8 ± 3.2; 3.2	1.5 ± 2.6; 2.6	-0.2 ± 1.9; 1.9
Cs-137	0.1 ± 1.8; 1.8	-0.2 ± 3.5; 3.5	2.7 ± 2.7; 2.7	1.7 ± 1.9; 1.9
Ba-La-140	-1.2 ± 1.2; 1.2	-1.2 ± 4.3; 4.3	-0.4 ± 3.4; 3.4	0.3 ± 1.9; 1.9

Table 3. Milk

Collection: Biweekly (May - October)
Monthly (November - April)

Required LLD: 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

Units: pCi/L

Sample Description and Concentration

BD-17 Halpin's Dairy

Date Collected	06-28-96	07-12-96	07-26-96	08-08-96
Lab Code	BDMI-4175	BDMI-4665	BDMI-494°	BDMI-5386,7
I-131	0.12 ± 0.28; 0.28	0.10 ± 0.30; 0.30	-0.14 ± 0.28; 0.28	-0.01 ± 0.15; 0.15
Mn-54	0.1 ± 1.8; 1.8	0.1 ± 2.4; 2.4	-1.0 ± 1.8; 1.8	1.0 ± 2.1; 2.1
Fe-59	-1.4 ± 4.1; 4.1	1.9 ± 5.7; 5.7	3.1 ± 4.9; 4.9	-3.6 ± 4.8; 4.9
Co-58	0.1 ± 1.7; 1.7	0.9 ± 2.3; 2.3	-1.7 ± 2.1; 2.1	-0.1 ± 2.0; 2.0
Co-60	0.8 ± 2.1; 2.1	-0.4 ± 3.1; 3.1	1.1 ± 2.8; 2.8	-1.3 ± 2.9; 2.9
Zn-65	0.6 ± 4.8; 4.8	1.5 ± 6.4; 6.4	-6.1 ± 4.7; 4.8	-3.5 ± 5.2; 5.2
Zr-Nb-95	0.1 ± 2.0; 2.0	-0.4 ± 2.9; 2.9	-0.7 ± 2.3; 2.3	-1.9 ± 2.3; 2.3
Cs-134	-1.1 ± 2.1; 2.1	-0.2 ± 2.7; 2.7	-0.8 ± 2.4; 2.4	0.6 ± 2.1; 2.1
Cs-137	-0.7 ± 2.1; 2.1	-0.1 ± 2.7; 2.7	-1.2 ± 2.3; 2.3	1.4 ± 2.2; 2.2
Ba-La-140	-0.9 ± 2.2; 2.2	0.7 ± 3.2; 3.2	-0.2 ± 3.7; 3.7	2.9 ± 2.1; 2.2

Date Collected	08-23-96	09-05-96	09-20-96	10-04-96
Lab Code	BDMI-5752	BDMI-6091	BDMI-6407	BDMI-6853
I-131	0.03 ± 0.10; 0.10	-0.09 ± 0.34; 0.34	-0.06 ± 0.30; 0.30	-0.10 ± 0.27; 0.27
Mn-54	0.4 ± 3.3; 3.3	-2.6 ± 2.6; 2.6	0.9 ± 2.4; 2.4	1.1 ± 3.2; 3.2
Fe-59	-4.3 ± 8.8; 8.8	-6.2 ± 6.6; 6.6	1.6 ± 5.7; 5.7	4.8 ± 8.8; 8.8
Co-58	1.9 ± 3.4; 3.4	0.2 ± 2.8; 2.8	-1.1 ± 2.5; 2.5	0.6 ± 3.3; 3.3
Co-60	7.2 ± 4.6; 4.7	-0.8 ± 3.5; 3.5	-0.4 ± 3.0; 3.0	-0.8 ± 4.8; 4.8
Zn-65	2.8 ± 9.2; 9.2	0.6 ± 6.4; 6.4	2.3 ± 5.8; 5.8	-8.7 ± 8.4; 8.5
Zr-Nb-95	1.4 ± 3.3; 3.3	0.6 ± 3.1; 3.1	0.7 ± 3.0; 3.0	0.5 ± 3.9; 3.9
Cs-134	-0.5 ± 3.7; 3.7	0.2 ± 2.8; 2.8	0.2 ± 2.7; 2.7	-2.8 ± 3.5; 3.5
Cs-137	0.8 ± 3.8; 3.8	3.4 ± 2.7; 2.7	0.9 ± 2.6; 2.6	1.6 ± 3.6; 3.6
Ba-La-140	-5.5 ± 4.3; 4.4	-5.2 ± 6.0; 6.1	3.5 ± 4.0; 4.0	0.6 ± 6.5; 6.5

Table 3. Milk

Collection: Biweekly (May - October)
Monthly (November - April)

Required LLD: 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

Units: pCi/L

Sample Description and Concentration

BD-17 Halpin's Dairy

Date Collected	10-18-96	11-01-96	12-06-96
Lab Code	BDMI-7386	BDMI-7755	BDMI-8751
I-131	-0.07 ± 0.18; 0.18	0.04 ± 0.23; 0.23	0.04 ± 0.17; 0.17
Mn-54	0.2 ± 3.4; 3.4	0.1 ± 1.9; 1.9	0.8 ± 2.5; 2.5
Fe-59	-4.0 ± 10.3; 10.3	0.2 ± 4.7; 4.7	6.6 ± 9.5; 9.5
Co-58	-1.1 ± 3.5; 3.5	-0.1 ± 2.1; 2.1	3.2 ± 3.4; 3.4
Co-60	1.9 ± 4.5; 4.5	-0.2 ± 2.1; 2.1	-1.8 ± 4.0; 4.0
Zn-65	-5.9 ± 10.2; 10.2	0.2 ± 4.5; 4.5	1.0 ± 8.6; 8.6
Zr-Nb-95	1.0 ± 4.1; 4.1	1.7 ± 2.2; 2.2	0.6 ± 3.8; 3.8
Cs-134	-1.2 ± 3.4; 3.4	-0.5 ± 2.1; 2.1	1.6 ± 3.4; 3.4
Cs-137	1.7 ± 3.5; 3.5	1.0 ± 1.9; 1.9	0.5 ± 3.2; 3.2
Ba-La-140	-2.5 ± 4.1; 4.1	-1.2 ± 3.4; 3.4	-3.0 ± 5.5; 5.5

Table 3. Milk

Collection: Biweekly (May - October)
Monthly (November - April)

Required LLD: 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

Units: pCi/L

Sample Description and Concentration

BD-18 (C) Biros Farm

Date Collected	04-05-96	05-03-96	05-17-96	05-31-96
Lab Code	BDMI-1885*	BDMI-2744	BDMI-3099.00	BDMI-3446
I-131	0.00 ± 0.17; 0.17	0.15 ± 0.22; 0.22	0.08 ± 0.19; 0.19	0.19 ± 0.20; 0.21
Mn-54	-1.0 ± 2.2; 2.2	0.1 ± 3.5; 3.5	-0.7 ± 2.1; 2.1	0.7 ± 3.6; 3.6
Fe-59	-1.7 ± 5.0; 5.0	-0.3 ± 7.0; 7.0	2.3 ± 5.0; 5.0	0.3 ± 6.8; 6.8
Co-58	0.5 ± 2.6; 2.6	2.0 ± 2.9; 2.9	0.2 ± 2.2; 2.2	-0.4 ± 3.0; 3.0
Co-60	2.1 ± 3.2; 3.2	0.8 ± 3.8; 3.8	0.3 ± 2.5; 2.5	3.7 ± 5.2; 5.2
Zn-65	-0.4 ± 5.9; 5.9	1.1 ± 8.9; 8.9	-3.1 ± 5.2; 5.2	3.7 ± 8.8; 8.8
Zr-Nb-95	-0.1 ± 2.4; 2.4	2.3 ± 3.0; 3.0	-1.2 ± 2.0; 2.0	-0.6 ± 3.3; 3.3
Cs-134	-1.8 ± 2.7; 2.7	-0.1 ± 3.5; 3.5	-0.9 ± 2.1; 2.1	4.3 ± 3.3; 3.4
Cs-137	0.1 ± 2.7; 2.7	-0.4 ± 3.5; 3.5	-0.7 ± 2.2; 2.2	-0.1 ± 3.6; 3.6
Ba-La-140	0.3 ± 2.8; 2.8	0.2 ± 3.9; 3.9	0.8 ± 2.4; 2.4	1.0 ± 4.5; 4.5

Date Collected	06-14-96	06-28-96	07-12-96	07-26-96
Lab Code	BDMI-3775	BDMI-4176	BDMI-4666	BDMI-4950
I-131	0.13 ± 0.27; 0.27	-0.21 ± 0.31; 0.31	0.15 ± 0.29; 0.29	0.09 ± 0.29; 0.29
Mn-54	-0.1 ± 2.5; 2.5	-4.6 ± 3.1; 3.2	0.2 ± 2.6; 2.6	0.4 ± 2.8; 2.8
Fe-59	-0.3 ± 5.2; 5.2	-2.8 ± 8.5; 8.5	-2.3 ± 6.0; 6.0	-2.1 ± 8.1, 8.1
Co-58	-0.4 ± 2.2; 2.2	0.2 ± 3.2; 3.2	0.6 ± 2.5; 2.5	1.2 ± 3.3; 3.3
Co-60	0.1 ± 2.9; 2.9	-4.6 ± 4.7; 4.7	-1.4 ± 3.3; 3.3	-1.9 ± 4.5; 4.5
Zn-65	-2.2 ± 5.7; 5.7	-0.6 ± 8.4; 8.4	-5.3 ± 7.1; 7.1	0.7 ± 7.4; 7.4
Zr-Nb-95	1.6 ± 2.4; 2.4	-1.4 ± 3.5; 3.5	-0.5 ± 2.9; 2.9	-2.6 ± 3.3; 3.3
Cs-134	0.4 ± 2.8; 2.8	3.0 ± 3.8; 3.8	0.8 ± 2.5; 2.5	2.2 ± 3.2; 3.2
Cs-137	-1.0 ± 2.6; 2.6	-1.3 ± 3.4; 3.4	0.8 ± 2.7; 2.7	-0.6 ± 3.0; 3.0
Ba-La-140	-1.2 ± 2.8; 2.8	-5.0 ± 4.7; 4.7	1.3 ± 4.3; 4.3	-0.7 ± 5.2; 5.2

* Goodwin Dairy (BD-24) went out of business in March, 1996; replaced by Biros Farm in April, 1996.

Table 3. Milk

Collection: Biweekly (May - October)
Monthly (November - April)

Required LLD: 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

Units: pCi/L

Sample Description and Concentration

BD-18 (C) Biros Farm

Date Collected	08-08-96	08-23-96	09-05-96	09-20-96
Lab Code	BDMI-5388	BDMI-5753	BDMI-6092	BDMI-6408
I-131	0.06 ± 0.21; 0.21	0.07 ± 0.09; 0.09	0.28 ± 0.37; 0.38	0.25 ± 0.28; 0.28
Mn-54	1.3 ± 2.1; 2.1	1.9 ± 2.3; 2.3	0.1 ± 2.4; 2.4	1.0 ± 2.2; 2.2
Fe-59	3.5 ± 4.6; 4.6	0.4 ± 5.8; 5.8	-1.4 ± 6.2; 6.2	0.2 ± 5.9; 5.9
Co-58	0.1 ± 1.8; 1.8	-1.6 ± 2.3; 2.3	-1.9 ± 2.6; 2.6	-0.9 ± 2.4; 2.4
Co-60	0.2 ± 2.4; 2.4	1.3 ± 3.2; 3.2	2.0 ± 3.1; 3.1	0.6 ± 3.1; 3.1
Zn-65	0.9 ± 4.6; 4.6	-0.6 ± 5.7; 5.7	3.4 ± 5.9; 5.9	-0.3 ± 5.5; 5.5
Zr-Nb-95	-1.6 ± 2.0; 2.0	0.7 ± 4.3; 4.3	1.3 ± 2.7; 2.7	-0.2 ± 2.9; 2.9
Cs-134	0.2 ± 2.2; 2.2	3.0 ± 2.7; 2.7	0.3 ± 2.7; 2.7	0.4 ± 2.8, 2.8
Cs-137	0.7 ± 2.3; 2.3	1.4 ± 2.9; 2.9	-1.6 ± 2.5; 2.5	1.2 ± 2.5; 2.5
Ba-La-140	-2.1 ± 2.8; 2.8	-0.5 ± 2.1; 2.1	-1.8 ± 4.4; 4.4	1.2 ± 3.7; 3.7

Date Collected	10-04-96	10-18-96	11-01-96	12-06-96
Lab Code	BDMI-6854,5	BDMI-7387	BDMI-7756	BDMI-8752
I-131	-0.09 ± 0.15; 0.15	-0.07 ± 0.17; 0.17	0.02 ± 0.19; 0.19	-0.02 ± 0.16; 0.16
Mn-54	0.9 ± 2.0; 2.0	-1.0 ± 2.4; 2.4	-2.0 ± 2.6; 2.6	-1.1 ± 2.3; 2.3
Fe-59	-1.6 ± 6.2; 6.2	2.7 ± 6.1; 6.1	4.5 ± 7.7; 7.8	0.6 ± 5.9; 5.9
Co-58	-0.4 ± 2.3; 2.3	-2.1 ± 2.8; 2.8	-1.2 ± 3.0; 3.0	-0.1 ± 2.4; 2.4
Co-60	1.1 ± 2.8; 2.8	-2.4 ± 3.0; 3.0	-0.3 ± 3.6; 3.6	1.8 ± 2.9; 2.9
Zn-65	-2.0 ± 5.6; 5.6	-0.2 ± 6.4; 6.4	-8.1 ± 8.1; 8.1	-3.2 ± 5.7; 5.7
Zr-Nb-95	1.6 ± 2.6; 2.6	0.2 ± 3.1; 3.1	-1.2 ± 3.3; 3.3	-0.2 ± 2.9; 2.9
Cs-134	0.7 ± 2.5; 2.5	-2.1 ± 2.7; 2.7	1.3 ± 3.2; 3.2	-0.6 ± 2.5; 2.5
Cs-137	0.4 ± 2.0; 2.0	0.8 ± 2.6; 2.6	1.5 ± 3.1, 3.1	1.4 ± 2.7; 2.7
Ba-La-140	-0.9 ± 3.8; 3.8	-0.9 ± 5.7; 5.7	2.3 ± 3.0; 3.0	0.4 ± 3.8, 3.8

* Goodwin Dairy (BD-24) went out of business in March, 1996; replaced by Biros Farm in April, 1996

Table 3. Milk

Collection:	Biweekly (May - October) Monthly (November - April)
Required LLD:	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
Units:	pCi/L

Sample Description and Concentration

BD-24 (C) Goodwin Dairy

Date Collected	01-05-96	02-02-96	03-03-96	04-05-96
Lab Code	BDMI-70,1	BDMI-521,2	BDMI-968	NS*
I-131	0.21 ± 0.17; 0.17	0.17 ± 0.22; 0.22	-0.04 ± 0.17; 0.17	-
Mn-54	1.0 ± 2.3; 2.3	0.6 ± 2.2; 2.2	2.3 ± 3.4; 3.5	-
Fe-59	-1.6 ± 5.7; 5.7	2.3 ± 4.5; 4.6	2.4 ± 8.3; 8.3	-
Co-58	-1.1 ± 2.3; 2.3	1.7 ± 2.3; 2.3	2.1 ± 2.9; 2.9	-
Co-60	1.5 ± 3.0; 3.0	-0.5 ± 2.9; 2.9	0.5 ± 3.5; 3.5	-
Zn-65	-1.0 ± 5.4; 5.4	-4.1 ± 5.0; 5.0	0.6 ± 7.6; 7.6	-
Zr-Nb-95	-1.6 ± 2.9; 2.9	1.1 ± 2.2; 2.2	0.2 ± 3.2; 3.2	-
Cs-134	0.6 ± 2.5; 2.5	-0.6 ± 2.3; 2.3	1.9 ± 3.8; 3.8	-
Cs-137	1.3 ± 2.4; 2.4	-0.6 ± 2.2; 2.2	0.8 ± 3.5; 3.5	-
Ba-La-140	-1.1 ± 4.7; 4.7	3.9 ± 2.2; 2.3	-5.7 ± 4.1; 4.2	-

* Goodwin Dairy went out of business in March, 1996; replaced by Biros Farm (BD-28) in April, 1996.

Table 4. Fish, Edible Portions
Collection: Semiannually
Required LLD: 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
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-25 (C) Kankakee River, Upstream

Date Collected	05-01-96	05-01-96	05-01-96	05-01-96
Lab Code	BDF-2608	BDF-2609	BDF-2610	BDF-2611
Type	Carp	Golden Redhorse	Channel Catfish	Northern Hogsucker
Mn-54	-0.1 ± 0.8; 0.8	0.4 ± 0.4; 0.4	0.2 ± 0.5; 0.5	0.1 ± 0.6; 0.6
Fe-59	-1.0 ± 2.5; 2.5	0.2 ± 1.2; 1.2	0.1 ± 1.2; 1.2	-0.0 ± 1.3; 1.3
Co-58	0.3 ± 1.0; 1.0	0.2 ± 0.5; 0.5	0.2 ± 0.6; 0.6	-0.0 ± 0.6; 0.6
Co-60	1.3 ± 1.2; 1.2	0.4 ± 0.7; 0.7	0.5 ± 0.6; 0.6	-0.3 ± 0.7; 0.7
Zn-65	1.4 ± 2.3; 2.3	0.3 ± 1.3; 1.3	0.1 ± 1.2; 1.2	-0.4 ± 1.5; 1.5
Zr-Nb-95	-0.2 ± 1.1; 1.1	-0.2 ± 0.5; 0.5	-0.3 ± 0.9; 0.9	0.2 ± 0.7; 0.7
Cs-134	-0.5 ± 1.1; 1.1	-0.6 ± 0.7; 0.7	0.3 ± 0.5; 0.5	0.4 ± 0.6; 0.6
Cs-137	0.2 ± 1.0; 1.0	-0.2 ± 0.6; 0.6	0.2 ± 0.5; 0.5	-0.1 ± 0.6; 0.6
Ba-La-140	0.1 ± 1.2; 1.2	0.6 ± 0.6; 0.6	0.3 ± 0.3; 0.3	0.9 ± 0.7; 0.7

Date Collected	10-01-96	10-01-96	10-01-96	10-01-96
Lab Code	BDF-6811	BDF-6812	BDF-6813	BDF-6814
Type	Shorthead Redhorse	Carp	Northern Hog Sucker	Black Redhorse
Mn-54	0.3 ± 0.9; 0.9	-0.1 ± 0.8; 0.8	0.1 ± 0.7; 0.7	0.1 ± 0.9; 0.9
Fe-59	0.6 ± 2.8; 2.8	-1.2 ± 2.5; 2.5	-0.5 ± 2.5; 2.5	0.1 ± 2.0; 2.0
Co-58	0.1 ± 1.0; 1.0	0.4 ± 0.9; 0.9	0.8 ± 1.0; 1.0	0.5 ± 1.0; 1.0
Co-60	0.8 ± 1.2; 1.2	0.1 ± 1.2; 1.2	0.3 ± 1.0; 1.0	-0.6 ± 1.3; 1.3
Zn-65	-0.7 ± 2.2; 2.2	-3.6 ± 2.4; 2.4	-1.4 ± 1.6; 1.6	-1.6 ± 2.5; 2.5
Zr-Nb-95	-1.0 ± 1.5; 1.5	0.1 ± 1.0; 1.0	0.2 ± 1.4; 1.4	-0.1 ± 1.0; 1.0
Cs-134	0.1 ± 0.8; 0.8	-0.2 ± 1.0; 1.0	-0.1 ± 0.9; 0.9	0.5 ± 1.1; 1.1
Cs-137	0.0 ± 0.9; 0.9	0.8 ± 0.9; 0.9	0.7 ± 0.8; 0.8	-0.5 ± 0.9; 0.9
Ba-La-140	0.1 ± 2.5; 2.5	-0.6 ± 1.3; 1.3	1.1 ± 5.1; 5.1	-0.8 ± 1.1; 1.1

Table 4. Fish, Edible Portions
Collection: Semiannually
Required LLD: 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
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-25 (C) Kankakee River, Upstream

Date Collected	10-01-96	10-01-96	10-01-96
Lab Code	BDF-6815	BDF-6816	BDF-6817
Type	Northern Pike	Smallmouth Bass	Golden Redhorse
Mn-54	-0.8 ± 1.1; 1.1	0.3 ± 0.9; 0.9	0.4 ± 1.0; 1.0
Fe-59	1.0 ± 2.7; 2.7	-2.4 ± 2.4; 2.4	-0.4 ± 2.4; 2.4
Co-58	0.3 ± 1.2; 1.2	-0.5 ± 0.9; 0.9	-0.2 ± 1.2; 1.2
Co-60	1.6 ± 1.5; 1.5	-0.3 ± 1.1; 1.1	0.6 ± 1.4; 1.4
Zn-65	0.9 ± 2.5; 2.5	2.5 ± 1.9; 2.0	-1.4 ± 2.8; 2.8
Zr-Nb-95	0.5 ± 1.1; 1.1	-0.6 ± 1.1; 1.1	-0.1 ± 1.8; 1.8
Cs-134	-0.3 ± 1.1; 1.1	-0.3 ± 0.9; 0.9	-0.9 ± 1.1; 1.1
Cs-137	0.3 ± 1.1; 1.1	0.7 ± 0.9; 0.9	-0.4 ± 1.2; 1.2
Ba-La-140	0.1 ± 1.6; 1.6	0.2 ± 1.0; 1.0	-1.7 ± 2.2; 2.2

Table 4. Fish, Edible Portions
Collection: Semiannually
Required LLD: 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
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-28 Kankakee River, Discharge

Date Collected	05-01-96	05-01-96	05-01-96	05-01-96
Lab Code	BDF-2612,3	BDF-2614	BDF-2615	BDF-2616
Type	Carp	Quillback	Smallmouth Bass	Channel Catfish
Mn-54	-0.4 ± 0.5; 0.6	0.5 ± 0.9; 0.9	0.2 ± 0.7; 0.7	-0.1 ± 0.8; 0.8
Fe-59	-0.0 ± 1.3; 1.3	1.2 ± 2.2; 2.2	0.5 ± 1.8; 1.8	1.6 ± 2.1; 2.1
Co-58	1.1 ± 0.6; 0.6	2.5 ± 1.1; 1.2	0.6 ± 0.7; 0.7	-0.4 ± 1.0; 1.0
Co-60	0.3 ± 0.8; 0.8	0.3 ± 1.1; 1.1	-0.1 ± 0.9; 0.9	0.8 ± 1.3; 1.[illegible]
Zn-65	0.3 ± 1.4; 1.4	-0.7 ± 2.4; 2.4	0.3 ± 1.8; 1.8	0.6 ± 2.6; 2.6
Zr-Nb-95	0.1 ± 0.6; 0.6	-1.2 ± 1.0; 1.0	0.1 ± 0.9; 0.9	0.5 ± 1.0; 1.0
Cs-134	0.6 ± 0.6; 0.6	0.6 ± 1.0; 1.0	0.1 ± 0.8; 0.8	-0.1 ± 1.0; 1.0
Cs-137	0.4 ± 0.7; 0.7	0.6 ± 0.9; 0.9	0.9 ± 0.9; 0.9	-0.3 ± 0.9; 0.9
Ba-La-140	0.1 ± 0.7; 0.7	-1.7 ± 1.3; 1.3	0.3 ± 1.4; 1.4	-0.2 ± 1.9; 1.9

Date Collected	05-01-96	10-01-96	10-01-96	10-01-96
Lab Code	BDF-2617	BDF-6806	BDF-6806	BDF-6807
Type	Northern Pike	Quillback	Bowfin	Smallmouth Bass
Mn-54	-0.0 ± 0.7; 0.7	0.0 ± 1.0; 1.0	0.2 ± 0.8; 0.8	-0.1 ± 1.2; 1.2
Fe-59	0.7 ± 1.7; 1.7	0.2 ± 2.5; 2.5	-2.1 ± 2.0; 2.1	-1.7 ± 3.3; 3.3
Co-58	0.5 ± 0.9; 0.9	0.8 ± 1.1; 1.1	-0.4 ± 0.8; 0.8	-0.6 ± 1.2; 1.2
Co-60	1.0 ± 1.1; 1.1	-0.3 ± 1.2; 1.2	-0.3 ± 0.9; 0.9	-0.6 ± 2.0; 2.0
Zn-65	0.3 ± 1.9; 1.9	0.3 ± 2.6; 2.6	2.1 ± 1.7; 1.7	1.2 ± 2.4; 2.4
Zr-Nb-95	-0.2 ± 0.8; 0.8	-0.2 ± 1.9; 1.9	-0.5 ± 0.9; 0.9	-1.0 ± 1.0; 1.0
Cs-134	0.3 ± 0.9; 0.9	-1.1 ± 1.1; 1.2	-0.3 ± 0.8; 0.8	-0.6 ± 1.2; 1.2
Cs-137	0.3 ± 0.9; 0.9	-0.1 ± 1.0; 1.0	0.6 ± 0.8; 0.8	0.7 ± 1.2; 1.2
Ba-La-140	-0.6 ± 0.9; 0.9	-1.4 ± 2.0; 2.0	0.2 ± 0.9; 0.9	1.3 ± 2.0; 2.0

Table 4. Fish, Edible Portions
Collection: Semiannually
Required LLD: 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
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-28 Kankakee River, Discharge

Date Collected	10-01-96	10-01-96	10-01-96
Lab Code	BDF-6808	BDF-6809	BDF-6810
Type	Carp	Channel Catfish	Gizzard Shad
Mn-54	0.3 ± 0.9; 0.9	0.2 ± 0.6; 0.6	0.1 ± 0.9; 0.9
Fe-59	-0.4 ± 2.4; 2.4	0.5 ± 1.8; 1.8	0.7 ± 2.3; 2.3
Co-58	0.5 ± 0.9; 0.9	-0.1 ± 0.7; 0.7	0.7 ± 1.0; 1.0
Co-60	0.7 ± 1.3; 1.3	-0.4 ± 1.0; 1.0	-0.7 ± 1.0; 1.0
Zn-65	-1.7 ± 2.4; 2.5	0.8 ± 1.8; 1.8	-1.9 ± 2.4; 2.4
Zr-Nb-95	-0.2 ± 1.1; 1.1	-0.8 ± 0.9; 0.9	-0.0 ± 1.5; 1.5
Cs-134	-0.2 ± 1.2; 1.2	0.4 ± 0.8; 0.8	0.6 ± 1.0; 1.0
Cs-137	0.7 ± 1.1; 1.1	0.2 ± 0.8; 0.8	0.3 ± 0.8; 0.9
Ba-La-140	2.0 ± 1.4; 1.4	-0.9 ± 1.4; 1.4	-2.4 ± 2.7; 2.7

Table 5. Bottom Sediments
Collection: Semiannually
Required LLD: Cs-134 = 0.15, Cs-137 = 0.18 pCi/g dry weight
Units: 10^{-2} pCi/g dry weight

Sample Description and Concentration

BD-10 Kankakee River, Downstream

Date Collected	05-24-96	10-04-96
Lab Code	BDBS-3314	BDBS-6896
Mn-54	1.1 ± 1.9; 1.9	-0.1 ± 1.3; 1.3
Fe-59	-0.9 ± 3.9; 3.9	-0.4 ± 3.3; 3.3
Co-58	-0.6 ± 1.9; 1.9	-0.1 ± 1.3; 1.3
Co-60	1.6 ± 2.6; 2.6	0.3 ± 1.5; 1.5
Zn-65	-6.1 ± 4.9; 4.9	1.7 ± 2.7; 2.7
Zr-Nb-95	-2.0 ± 2.4; 2.4	-[illegible].2 ± 1.8; 1.8
Cs-134	2.4 ± 2.2; 2.2	0.3 ± 1.0; 1.0
Cs-137	22.0 ± 5.1; 5.9	9.8 ± 2.4; 2.7
Ba-La-140	-2.0 ± 3.0; 3.0	-[illegible]9 ± 3.4; 3.4

Table 6. Vegetation
Collection: Annually
Required LLD: I-131 = 0.06, Cs-134 = 0.06, Cs-137 = 0.08 pCi/g wet weight
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-control Gorman Farm

Date Collected	08-29-96	08-29-96	08-29-96	08-29-96
Lab Code	BDVE-5959	BDVE-5960	BDVE-5961	BDVE-5962
Type	Cabbage	Swiss chard	Beets	Squash
I-131	-0.43 ± 1.27; 1.27	-0.18 ± 2.24; 2.24	0.05 ± 1.[illegible]; 1.27	0.34 ± 0.69; 0.69
Mn-54	-0.1 ± 0.8; 0.8	-0.2 ± 0.8; 0.8	-0.1 ± 0.9; 0.9	-0.3 ± 0.4; 0.4
Fe-59	-1.3 ± 2.0; 2.0	1.0 ± 2.0; 2.0	0.5 ± 1.9; 1.9	-0.1 ± 1.0; 1.0
Co-58	-0.4 ± 0.9; 0.9	-0.5 ± 0.8; 0.8	0.2 ± 0.8; 0.8	0.3 ± 0.4; 0.4
Co-60	-0.2 ± 1.1; 1.1	1.0 ± 1.1; 1.1	-0.3 ± 1.2; 1.2	0.1 ± 0.6; 0.6
Zn-65	1.4 ± 1.8; 1.8	-0.4 ± 2.0; 2.0	0.6 ± 2.1; 2.1	-1.0 ± 1.0; 1.0
Zr-Nb-95	-0.5 ± 0.8; 0.8	0.1 ± 0.8; 0.8	-0.4 ± 1.0; 1.0	-0.5 ± 0.5; 0.5
Cs-134	-0.5 ± 1.0; 1.0	-0.2 ± 0.7; 0.7	-0.1 ± 1.0; 1.0	0.0 ± 0.5; 0.5
Cs-137	0.7 ± 0.9; 0.9	0.1 ± 0.8; 0.8	0.4 ± 0.9; 0.9	0.1 ± 0.4; 0.4
Ba-La-140	-1.0 ± 1.4; 1.4	1.1 ± 1.6; 1.6	0.2 ± 1.0; 1.0	-0.3 ± 0.5; 0.5

BD-quad 1 Clark Farm

Date Collected	08-29-96	08-29-96	08-29-96	08-29-96
Lab Code	BDVE-5950,1	BDVE-5952	BDVE-5953	BDVE-5954
Type	Cucumbers	Beets	Beet greens	Cabbage
I-131	0.06 ± 0.54; 0.54	-0.11 ± 0.62; 0.62	-0.91 ± 0.99; 0.99	-0.21 ± 0.77; 0.77
Mn-54	0.0 ± 0.3; 0.3	-0.3 ± 0.4; 0.4	-0.6 ± 0.7; 0.7	-0.1 ± 0.4; 0.4
Fe-59	-0.1 ± 0.8; 0.8	-0.9 ± 1.0; 1.0	0.5 ± 1.6; 1.6	0.1 ± 1.1; 1.1
Co-58	0.1 ± 0.3; 0.3	-0.3 ± 0.4; 0.4	-0.4 ± 0.7; 0.7	-0.3 ± 0.6; 0.6
Co-60	0.2 ± 0.4; 0.4	-0.4 ± 0.6; 0.6	0.0 ± 1.0; 1.0	0.5 ± 0.6; 0.6
Zn-65	-0.6 ± 0.8; 0.8	-0.4 ± 1.0; 1.0	-1.0 ± 1.6; 1.6	-0.3 ± 1.3; 1.3
Zr-Nb-95	-0.1 ± 0.3; 0.3	-0.1 ± 0.4; 0.4	-0.5 ± 0.7; 0.7	-0.4 ± 0.6; 0.6
Cs-134	-0.1 ± 0.4; 0.4	-0.3 ± 0.5; 0.5	-0.3 ± 0.7; 0.7	0.3 ± 0.6; 0.6
Cs-137	-0.0 ± 0.3; 0.3	0.1 ± 0.4; 0.4	0.1 ± 0.7; 0.7	0.0 ± 0.6; 0.6
Ba-La-140	-0.2 ± 0.5; 0.5	0.0 ± 0.4; 0.4	-0.3 ± 0.7; 0.7	0.0 ± 0.3; 0.3

Table 6. Vegetation
Collection: Annually
Required LLD: I-131 = 0.06, Cs-134 = 0.06, Cs-137 = 0.08 pCi/g wet weight
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-quad 2 Evelyn Hefner

Date Collected	09-13-96	09-13-96	09-13-96	11-29-96
Lab Code	BDVE-6273	BDVE-6274	BDVE-6275	BDVE-8549
Type	Cabbage	Tomatoes	Squash	Sweet Potatoes
I-131	-0.31 ± 0.73; 0.74	0.10 ± 0.67; 0.67	-0.43 ± 0.82; 0.82	-0.18 ± 1.08; 1.08
Mn-54	-0.0 ± 0.5; 0.5	0.1 ± 0.5; 0.5	0.2 ± 0.6; 0.6	0.6 ± 1.2; 1.2
Fe-59	0.9 ± 1.0; 1.0	-0.0 ± 1.2; 1.2	-0.1 ± 1.4; 1.4	-1.8 ± 2.3; 2.3
Co-58	0.3 ± 0.4; 0.4	-0.4 ± 0.5; 0.5	0.2 ± 0.5; 0.5	0.3 ± 1.3; 1.3
Co-60	0.1 ± 0.6; 0.6	-0.1 ± 0.7; 0.7	-0.4 ± 0.7; 0.7	-1.6 ± 1.5; 1.5
Zn-65	0.1 ± 1.1; 1.1	-0.8 ± 1.3; 1.3	0.3 ± 1.4; 1.4	-1.2 ± 2.7; 2.7
Zr-Nb-95	-0.4 ± 0.5; 0.5	-0.2 ± 0.5; 0.5	-0.7 ± 0.6; 0.6	-0.8 ± 1.3; 1.3
Cs-134	-0.1 ± 0.5; 0.5	-0.7 ± 0.5; 0.5	0.3 ± 0.6; 0.6	0.1 ± 1.4; 1.4
Cs-137	-0.0 ± 0.5; 0.5	0.0 ± 0.5; 0.5	-0.1 ± 0.6; 0.6	-0.6 ± 1.3; 1.3
Ba-La-140	-0.2 ± 0.6; 0.6	0.2 ± 0.7; 0.7	0.5 ± 0.7; 0.7	1.1 ± 1.3; 1.3

BD-quad 3 Robert Mack

Date Collected	08-29-96	08-29-96	08-29-96	08-29-96
Lab Code	BDVE-5955	BDVE-5956	BDVE-5957	BDVE-5958
Type	Cucumbers	Beets	Beet greens	Cabbage
I-131	0.27 ± 0.73; 0.73	0.18 ± 0.59; 0.59	-0.37 ± 1.30; 1.30	-1.01 ± 0.89; 0.90
Mn-54	-0.0 ± 0.4; 0.4	0.1 ± 0.3; 0.3	0.0 ± 0.8; 0.8	-0.3 ± 0.7; 0.7
Fe-59	0.1 ± 1.0; 1.0	0.0 ± 0.8; 0.8	1.9 ± 1.9; 1.9	-0.3 ± 1.7; 1.7
Co-58	-0.2 ± 0.4; 0.4	-0.1 ± 0.3; 0.3	-0.2 ± 0.8; 0.8	-0.3 ± 0.7; 0.7
Co-60	-0.1 ± 0.5; 0.5	0.1 ± 0.5; 0.5	0.8 ± 1.1; 1.1	0.4 ± 0.8; 0.8
Zn-65	0.7 ± 1.0; 1.0	0.5 ± 0.8; 0.8	1.4 ± 2.1; 2.1	-0.8 ± 1.6; 1.6
Zr-Nb-95	0.0 ± 0.0; 0.0	0.0 ± 0.3; 0.3	0.3 ± 0.7; 0.7	0.1 ± 0.7; 0.7
Cs-134	-0.1 ± 0.4; 0.4	-0.2 ± 0.4; 0.4	0.8 ± 0.9; 0.9	0.4 ± 0.8; 0.8
Cs-137	0.1 ± 0.4; 0.4	-0.0 ± 0.4; 0.4	0.4 ± 0.9; 0.9	0.2 ± 0.7; 0.7
Ba-La-140	-0.1 ± 0.6; 0.6	0.2 ± 0.4; 0.4	-1.3 ± 1.0; 1.0	0.1 ± 0.8; 0.8

Table 6. Vegetation
Collection: Annually
Required LLD: I-131 = 0.06, Cs-134 = 0.06, Cs-137 = 0.08 pCi/g wet weight
Units: 10^{-2} pCi/g wet weight

Sample Description and Concentration

BD-quad 4 John Broucek Farm

Date Collected	09-13-96	09-13-96	09-13-96	09-13-96
Lab Code	BDVE-6276	BDVE-6277	BDVE-6278	BDVE-6279
Type	Cabbage	Cucumbers	Potatoes	Corn
I-131	-0.37 ± 0.70; 0.70	0.17 ± 0.66; 0.66	0.39 ± 0.83; 0.83	-0.10 ± 0.84; 0.84
Mn-54	0.2 ± 0.5; 0.5	-0.3 ± 0.5; 0.5	-0.1 ± 0.6; 0.6	0.0 ± 0.7; 0.7
Fe-59	-0.6 ± 0.9; 0.9	1.1 ± 1.2; 1.2	-0.5 ± 1.7; 1.7	0.1 ± 1.5; 1.5
Co-58	-0.2 ± 0.4; 0.4	0.2 ± 0.5; 0.5	0.2 ± 0.5; 0.6	-0.3 ± 0.5; 0.5
Co-60	0.7 ± 0.6; 0.6	0.6 ± 0.6; 0.6	0.5 ± 0.9; 0.9	-0.4 ± 0.7; 0.7
Zn-65	-0.3 ± 1.0; 1.0	0.0 ± 1.3; 1.3	-0.6 ± 1.8; 1.8	1.7 ± 1.6; 1.6
Zr-Nb-95	0.2 ± 0.5; 0.5	-0.0 ± 0.5; 0.5	0.0 ± 0.6; 0.6	-0.1 ± 0.7; 0.7
Cs-134	-0.2 ± 0.5; 0.5	0.1 ± 0.5; 0.5	0.7 ± 0.8; 0.8	0.1 ± 0.8; 0.8
Cs-137	0.0 ± 0.5; 0.5	0.1 ± 0.5; 0.5	-0.2 ± 0.7; 0.7	-0.2 ± 0.7; 0.7
Ba-La-140	-0.2 ± 0.6; 0.6	-0.6 ± 0.6; 0.7	-0.1 ± 0.7; 0.7	0.4 ± 0.9; 0.9

Table 7. Surface Water

Collection: Monthly composites of weekly collections

Required LLD: 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

BD-10 Kankakee River, Downstream

1996 Collection Period	January	February	March
Lab Code	BDSW-440	BDSW-924	BDSW-2142
Gross Beta	3.1 ± 1.5 ; 1.6	3.3 ± 1.5 ; 1.6	4.2 ± 1.7 ; 1.9
Mn-54	-0.5 ± 1.9; 1.9	-1.7 ± 2.6; 2.6	-0.8 ± 2.8; 2.8
Fe-59	-1.4 ± 3.9; 3.9	-0.8 ± 5.6; 5.6	-2.3 ± 7.2; 7.2
Co-58	0.8 ± 2.0; 2.0	1.9 ± 2.4; 2.4	0.3 ± 3.4; 3.4
Co-60	-0.1 ± 2.3; 2.3	1.0 ± 3.4; 3.4	0.3 ± 2.9; 2.9
Zn-65	-3.9 ± 3.9; 3.9	0.5 ± 4.4; 4.4	0.1 ± 6.0; 6.0
Zr-Nb-95	-0.3 ± 2.4; 2.4	-1.8 ± 2.8; 2.8	-1.2 ± 3.9; 3.9
Cs-134	-1.5 ± 2.4; 2.4	0.2 ± 2.7; 2.7	2.0 ± 3.1; 3.2
Cs-137	-3.5 ± 2.1; 2.1	0.6 ± 2.8; 2.8	2.7 ± 3.2; 3.3
Ba-La-140	0.1 ± 5.4; 5.4	1.5 ± 4.9; 4.9	-6.6 ± 9.7; 9.7

1996 Collection Period	April	May	June
Lab Code	BDSW-2702	BDSW-3817	BDSW-4474
Gross Beta	2.6 ± 1.5 ; 1.5	3.4 ± 1.6 ; 1.7	3.3 ± 1.2 ; 1.3
Mn-54	0.3 ± 1.8; 1.8	0.9 ± 2.5; 2.5	-0.7 ± 2.1; 2.1
Fe-59	0.3 ± 3.2; 3.2	-6.7 ± 8.0; 8.1	0.2 ± 4.1; 4.1
Co-58	2.5 ± 1.9; 1.9	0.9 ± 2.6; 2.6	0.2 ± 1.9; 1.9
Co-60	0.7 ± 1.8; 1.8	1.7 ± 3.7; 3.7	1.0 ± 1.8; 1.8
Zn-65	0.3 ± 2.8; 2.8	-0.5 ± 6.5; 6.5	-3.7 ± 3.7; 3.7
Zr-Nb-95	0.6 ± 1.8; 1.8	-0.3 ± 3.5; 3.5	1.2 ± 2.6; 2.6
Cs-134	0.7 ± 1.9; 1.9	-1.0 ± 3.3; 3.3	1.2 ± 2.5; 2.5
Cs-137	0.3 ± 1.8; 1.8	2.6 ± 3.3; 3.3	-0.1 ± 2.2; 2.2
Ba-La-140	-3.3 ± 2.9; 3.0	-0.6 ± 7.8; 7.8	-5.1 ± 6.0; 6.0

Table 7. Surface Water

Collection: Monthly composites of weekly collections

Required LLD: 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

BD-10 Kankakee River, Downtream

1996 Collection Period	July	August	September
Lab Code	BDSW-5473	BDSW-6078	BDSW-7168
Gross Beta	2.6 ± 1.5 ; 1.5	4.2 ± 1.2 ; 1.4	2.7 ± 1.6 ; 1.6
Mn-54	-0.4 ± 2.8; 2.8	0.1 ± 2.3; 2.3	0.9 ± 2.2; 2.2
Fe-59	3.7 ± 6.9; 6.9	-3.1 ± 6.6; 6.6	-2.5 ± 6.4; 6.4
Co-58	-1.4 ± 3.3; 3.3	0.3 ± 2.3; 2.3	0.2 ± 2.4; 2.4
Co-60	-2.8 ± 3.0; 3.0	0.6 ± 3.0; 3.0	2.0 ± 2.4; 2.5
Zn-65	-2.1 ± 6.1; 6.1	0.6 ± 6.0; 6.0	-1.9 ± 4.6; 4.6
Zr-Nb-95	0.4 ± 3.1; 3.1	1.0 ± 3.2; 3.2	0.1 ± 3.0; 3.0
Cs-134	-1.5 ± 3.0; 3.0	-2.4 ± 3.1; 3.1	1.4 ± 2.4; 2.4
Cs-137	0.9 ± 3.1; 3.1	3.5 ± 3.1; 3.1	1.0 ± 2.4; 2.4
Ba-La-140	-0.9 ± 6.7; 6.7	3.5 ± 3.5; 3.5	-5.5 ± 6.6; 6.6

1996 Collection Period	October	November	December
Lab Code	BDSW-8204	BDSW-8938	BDSW-9575
Gross Beta	3.6 ± 1.3 ; 1.4	2.3 ± 1.6 ; 1.6	2.6 ± 1.5 ; 1.5
Mn-54	0.3 ± 1.6; 1.6	-0.4 ± 2.9; 2.9	0.3 ± 2.2; 2.2
Fe-59	2.0 ± 4.1; 4.1	0.1 ± 6.6; 6.6	-1.7 ± 4.7; 4.7
Co-58	-0.3 ± 1.7; 1.7	1.2 ± 3.3; 3.3	-0.3 ± 2.5; 2.5
Co-60	0.2 ± 1.9; 1.9	-2.6 ± 3.2; 3.2	-0.9 ± 1.9; 1.9
Zn-65	-0.8 ± 3.8; 3.8	-0.6 ± 6.3; 6.3	4.9 ± 4.9; 5.0
Zr-Nb-95	1.3 ± 2.2; 2.2	0.1 ± 0.0; 0.0	-3.0 ± 2.7; 2.7
Cs-134	1.0 ± 1.9; 1.9	-1.2 ± 3.5; 3.5	2.4 ± 2.0; 2.1
Cs-137	0.4 ± 1.9; 1.9	-0.5 ± 2.9; 2.9	-0.5 ± 2.5; 2.5
Ba-La-140	-1.8 ± 5.4; 5.4	5.6 ± 9.2; 9.2	-1.2 ± 5.1; 5.1

Table 7. Surface Water

Collection: Monthly composites of weekly collections

Required LLD: 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

BD-25 (C) Kankakee River, Upstream

1996 Collection Period	January	February	March
Lab Code	BDSW-441	BDSW-925	BDSW-2143
Gross Beta	5.8 ± 1.7; 1.9	4.3 ± 1.6; 1.7	1.8 ± 1.6; 1.6
Mn-54	-0.1 ± 2.9; 2.9	-0.9 ± 2.0; 2.0	-0.1 ± 1.8; 1.8
Fe-59	-0.9 ± 6.7; 6.7	1.1 ± 3.6; 3.6	-1.2 ± 4.4; 4.4
Co-58	-0.2 ± 3.2; 3.2	1.0 ± 2.0; 2.0	-0.3 ± 2.2; 2.2
Co-60	0.6 ± 3.0; 3.0	2.4 ± 1.9; 1.9	2.1 ± 2.1; 2.1
Zn-65	-2.9 ± 7.7; 7.7	-2.7 ± 3.8; 3.8	-0.7 ± 4.0; 4.0
Zr-Nb-95	-0.6 ± 5.2; 5.2	-0.2 ± 2.3; 2.3	1.2 ± 2.3; 2.3
Cs-134	0.9 ± 3.6; 3.6	1.1 ± 2.1; 2.1	0.8 ± 2.1; 2.1
Cs-137	-0.6 ± 3.4; 3.4	0.4 ± 2.1; 2.1	0.9 ± 2.1; 2.1
Ba-La-140	-0.8 ± 5.9; 5.9	1.0 ± 3.4; 3.4	-1.3 ± 4.9; 4.9

1996 Collection Period	April	May	June
Lab Code	BDSW-2703	BDSW-3818	BDSW-4475
Gross Beta	2.9 ± 1.5; 1.5	4.2 ± 1.7; 1.8	3.6 ± 1.1; 1.3
Mn-54	1.2 ± 2.0; 2.0	-0.5 ± 2.8; 2.8	-0.3 ± 1.2; 1.2
Fe-59	-3.8 ± 5.0; 5.1	0.8 ± 6.8; 6.8	0.1 ± 3.0; 3.0
Co-58	0.2 ± 2.1; 2.1	0.2 ± 3.1; 3.1	-0.1 ± 1.3; 1.3
Co-60	1.1 ± 1.9; 1.9	-1.4 ± 3.3; 3.3	0.5 ± 1.2; 1.2
Zn-65	1.9 ± 4.5; 4.5	0.2 ± 6.0; 6.0	1.7 ± 2.5; 2.5
Zr-Nb-95	4.3 ± 3.9; 3.9	-3.0 ± 3.8; 3.8	1.4 ± 1.5; 1.5
Cs-134	0.7 ± 2.3; 2.3	0.2 ± 3.1; 3.1	0.1 ± 1.3; 1.3
Cs-137	0.0 ± 2.2; 2.2	2.0 ± 3.2; 3.2	-0.3 ± 1.2; 1.2
Ba-La-140	-3.6 ± 6.6; 6.6	7.6 ± 9.2; 9.2	-2.8 ± 3.6; 3.6

Table 7. Surface Water

Collection: Monthly composites of weekly collections

Required LLD: 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

BD-25 (C) Kankakee River, Upstream

1996 Collection Period	July	August	September
Lab Code	BDSW-5474	BDSW-6080	BDSW-7170
Gross Beta	4.5 ± 0.9 ; 1.2	3.5 ± 1.6 ; 1.7	5.5 ± 1.6 ; 1.8
Mn-54	1.5 ± 1.6; 1.6	0.9 ± 1.8; 1.8	0.8 ± 2.5; 2.5
Fe-59	-3.4 ± 3.4; 3.5	-5.4 ± 5.4; 5.4	-1.4 ± 6.3; 6.3
Co-58	-0.6 ± 1.7; 1.7	-2.2 ± 2.2; 2.2	-0.1 ± 2.3; 2.3
Co-60	-0.4 ± 1.5; 1.5	0.2 ± 1.6; 1.6	0.0 ± 2.6; 2.6
Zn-65	-0.6 ± 3.6; 3.6	-1.1 ± 4.3; 4.3	3.9 ± 4.8; 4.8
Zr-Nb-95	1.5 ± 2.8; 2.8	-1.3 ± 3.3; 3.3	-3.7 ± 3.3; 3.3
Cs-134	0.1 ± 1.9; 1.9	0.4 ± 2.1; 2.1	-2.1 ± 2.8; 2.8
Cs-137	0.3 ± 2.0; 2.0	0.5 ± 2.0; 2.0	-0.9 ± 2.6; 2.6
Ba-La-140	0.9 ± 4.4; 4.4	-0.8 ± 9.9; 9.9	-3.8 ± 8.0; 8.0

1996 Collection Period	October	November	December
Lab Code	BDSW-8205	BDSW-8940	BDSW-9574
Gross Beta	3.2 ± 1.3 ; 1.4	2.8 ± 1.6 ; 1.7	2.0 ± 1.5 ; 1.5
Mn-54	-0.9 ± 1.7; 1.7	1.0 ± 1.9; 1.9	0.7 ± 1.8; 1.8
Fe-59	1.0 ± 4.7; 4.7	-0.1 ± 4.2; 4.2	3.1 ± 4.8; 4.8
Co-58	-1.1 ± 1.8; 1.8	-0.4 ± 2.0; 2.0	-0.5 ± 1.8; 1.8
Co-60	-1.4 ± 2.0; 2.0	0.6 ± 1.5; 1.5	-0.4 ± 2.0; 2.0
Zn-65	-2.6 ± 3.0; 3.0	-3.7 ± 4.3; 4.3	-0.5 ± 3.1; 3.1
Zr-Nb-95	1.0 ± 2.9; 2.9	-1.0 ± 2.6; 2.6	1.8 ± 2.6; 2.6
Cs-134	-1.1 ± 1.9; 1.9	2.0 ± 1.9; 1.9	0.3 ± 2.1; 2.1
Cs-137	0.1 ± 2.2; 2.2	0.3 ± 2.0; 2.0	-0.7 ± 2.0; 2.0
Ba-La-140	3.9 ± 5.7; 5.8	-2.1 ± 5.0; 5.0	0.6 ± 5.6; 5.6

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

1996 Collection Period	Sample Description and Concentration	
	Lab Code	Tritium
	BD-10 Kankakee River, Downtream	
1st Quarter	BDSW- 1692	497 ± 97; 118
2nd Quarter	BDSW- 4204	367 ± 91; 103
3rd Quarter	BDSW- 6669	801 ± 108; 153
4th Quarter	BDSW- 9433,4	278 ± 64; 69
	BD-25 (C) Kankakee River, Upstream	
1st Quarter	BDSW- 1693	90 ± 81; 81
2nd Quarter	BDSW- 4205	-17 ± 74; 74
3rd Quarter	BDSW- 6670	56 ± 80; 80
4th Quarter	BDSW- 9436	23 ± 81; 81

Table 8. Well Water

Collection: Quarterly

Required LLD: H-3 = 200, 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

BD-13 Braidwood City Hall Well

Date Collected	01-05-96	04-05-96	07-05-96	10-04-96
Lab Code	BDWW-75	BDWW-1889	BDWW-4371	BDWW-6891
H-3	-29 ± 98; 98	63 ± 78; 79	-22 ± 82; 82	50 ± 79; 80
Mn-54	3.4 ± 2.8; 2.9	0.6 ± 2.1; 2.1	1.2 ± 1.8; 1.8	-0.3 ± 2.2; 2.2
Fe-59	0.2 ± 7.1; 7.1	-2.7 ± 4.3; 4.3	0.8 ± 4.3; 4.3	1.5 ± 4.1; 4.1
Co-58	0.6 ± 3.1; 3.1	-0.9 ± 2.0; 2.0	-1.5 ± 1.9; 1.9	0.1 ± 2.6; 2.6
Co-60	-1.0 ± 2.8; 2.8	1.2 ± 2.1; 2.1	0.3 ± 2.0; 2.0	-0.3 ± 2.2; 2.2
Zn-65	0.5 ± 6.1; 6.1	-9.7 ± 4.9; 5.1	3.8 ± 4.0; 4.0	-3.6 ± 4.5; 4.5
Zr-Nb-95	0.2 ± 3.7; 3.7	0.7 ± 2.3; 2.3	-0.7 ± 2.5; 2.5	-1.4 ± 3.1; 3.1
Cs-134	2.3 ± 3.5; 3.5	-0.3 ± 2.3; 2.3	-0.4 ± 2.4; 2.4	0.6 ± 2.7; 2.7
Cs-137	0.3 ± 3.2; 3.2	3.4 ± 2.3; 2.4	-1.6 ± 2.0; 2.0	-1.2 ± 2.5; 2.5
Ba-La-140	7.5 ± 4.8; 4.9	0.2 ± 3.3; 3.3	3.6 ± 6.4; 6.4	-4.6 ± 4.3; 4.3

BD-34 Gibson Well

Date Collected	01-05-96	04-05-96	07-05-96	10-04-96
Lab Code	BDWW-76	BDWW-1890	BDWW-4372	BDWW-6892
H-3	589 ± 120; 144	570 ± 69; 89	377 ± 94; 107	530 ± 99; 123
Mn-54	2.0 ± 3.2; 3.2	0.1 ± 1.3; 1.3	-0.2 ± 1.1; 1.1	0.3 ± 2.8; 2.8
Fe-59	-0.3 ± 5.7; 5.7	0.8 ± 2.6; 2.6	0.1 ± 2.6; 2.6	-1.8 ± 5.4; 5.4
Co-58	-0.2 ± 2.8; 2.8	-0.6 ± 1.3; 1.3	0.2 ± 1.1; 1.1	-0.6 ± 3.3; 3.3
Co-60	3.9 ± 3.5; 3.5	0.9 ± 1.4; 1.4	-0.1 ± 1.2; 1.2	-0.7 ± 1.0; 1.0
Zn-65	3.2 ± 5.3; 5.3	-6.3 ± 3.0; 3.1	0.3 ± 2.3; 2.3	-3.1 ± 4.5; 4.5
Zr-Nb-95	-2.0 ± 3.4; 3.4	-0.2 ± 1.5; 1.5	-0.9 ± 1.7; 1.7	-0.3 ± 3.3; 3.3
Cs-134	2.0 ± 3.4; 3.4	0.6 ± 1.4; 1.4	0.4 ± 1.3; 1.3	-3.4 ± 4.0; 4.0
Cs-137	-0.7 ± 3.0; 3.0	-0.2 ± 1.5; 1.5	-1.3 ± 1.3; 1.3	0.6 ± 3.3; 3.3
Ba-La-140	4.5 ± 4.3; 4.4	-1.4 ± 2.1; 2.1	0.5 ± 3.5; 3.5	1.2 ± 0.0; 0.2

Table 8. Well Water

Collection: Quarterly

Required LLD: H-3 = 200, 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

BD-35 Joly Well

Date Collected	01-05-96	04-05-96	07-05-96	10-04-96
Lab Code	BDWW-77	BDWW-1892	BDWW-4373	BDWW-6893
H-3	-78 ± 96; 97	57 ± 74; 75	-6 ± 74; 74	-18 ± 77; 77
Mn-54	-1.3 ± 3.7; 3.7	0.6 ± 1.3; 1.3	0.7 ± 1.1; 1.1	0.2 ± 2.9; 2.9
Fe-59	3.3 ± 6.3; 6.3	0.7 ± 2.6; 2.6	-0.2 ± 2.3; 2.3	-1.3 ± 7.9; 7.9
Co-58	0.2 ± 3.5; 3.5	-1.2 ± 1.3; 1.3	-0.1 ± 1.2; 1.2	-1.8 ± 3.1; 3.1
Co-60	1.6 ± 3.7; 3.7	0.5 ± 1.4; 1.4	0.6 ± 0.9; 0.9	0.9 ± 2.8; 2.8
Zn-65	-2.6 ± 7.5; 7.5	-3.8 ± 3.0; 3.1	0.1 ± 2.2; 2.2	-3.7 ± 6.3; 6.4
Zr-Nb-95	-0.6 ± 3.8; 3.8	-3.3 ± 1.5; 1.6	-0.8 ± 2.1; 2.1	3.3 ± 3.8; 3.8
Cs-134	-1.2 ± 3.8; 3.8	-0.4 ± 1.5; 1.5	0.9 ± 1.2; 1.2	2.2 ± 3.1; 3.1
Cs-137	0.8 ± 3.4; 3.4	1.2 ± 1.4; 1.4	0.4 ± 1.2; 1.2	1.5 ± 3.0; 3.0
Ba-La-140	1.6 ± 5.8; 5.8	-0.2 ± 2.1; 2.1	-3.0 ± 3.0; 3.0	-5.3 ± 9.6; 9.7

BD-36 Hutton Well

Date Collected	01-05-96	04-05-96	07-05-96	10-04-96
Lab Code	BDWW-78	BDWW-1893	BDWW-4374	BDWW-6894
H-3	563 ± 119; 142	696 ± 99; 137	539 ± 96; 121	498 ± 98; 119
Mn-54	-0.3 ± 4.1; 4.1	0.3 ± 2.4; 2.4	0.1 ± 1.4; 1.4	-1.2 ± 2.2; 2.2
Fe-59	-0.2 ± 6.2; 6.2	4.2 ± 5.1; 5.1	-0.1 ± 3.8; 3.8	-1.9 ± 5.1; 5.1
Co-58	-0.2 ± 3.3; 3.3	0.9 ± 2.6; 2.6	0.4 ± 1.6; 1.6	0.2 ± 2.3; 2.3
Co-60	-1.8 ± 3.9; 3.9	0.1 ± 2.5; 2.5	-0.1 ± 1.6; 1.6	1.5 ± 2.3; 2.3
Zn-65	-2.9 ± 8.2; 8.2	-1.7 ± 5.8; 5.8	-2.5 ± 3.7; 3.8	0.6 ± 4.6; 4.6
Zr-Nb-95	-4.0 ± 3.9; 4.0	-3.2 ± 3.0; 3.0	1.3 ± 2.0; 2.0	-0.8 ± 2.6; 2.6
Cs-134	-0.5 ± 3.7; 3.7	-0.2 ± 3.0; 3.0	-0.5 ± 1.7; 1.7	1.9 ± 2.5; 2.5
Cs-137	-0.8 ± 3.6; 3.6	-0.9 ± 2.6; 2.6	1.7 ± 1.6; 1.6	0.5 ± 2.4; 2.4
Ba-La-140	-7.5 ± 5.7; 5.8	-0.6 ± 3.4; 3.4	1.1 ± 3.8; 3.8	-6.3 ± 6.4; 6.5

Table 8. Well Water

Collection: Quarterly

Required LLD: H-3 = 200, 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

BD-37 Nurczyk W' 'l

Date Collected	01-05-96	04-05-96	07-05-96	10-04-96
Lab Code	BDWW-79	BDWW-1894	BDWW-4375	BDWW-6895
H-3	64 ± 102; 102	-16 ± 71; 71	-28 ± 54; 55	23 ± 79; 79
Mn-54	3.6 ± 3.7; 3.8	0.7 ± 2.4; 2.4	-1.4 ± 1.6; 1.6	0.9 ± 1.9; 1.9
Fe-59	-4.1 ± 7.2; 7.2	1.2 ± 4.1; 4.1	-3.1 ± 4.5; 4.5	-2.1 ± 4.2; 4.3
Co-58	-1.7 ± 3.2; 3.2	1.5 ± 2.4; 2.4	-0.5 ± 1.7; 1.7	-1.0 ± 2.1; 2.1
Co-60	1.7 ± 3.8; 3.8	1.7 ± 2.4; 2.4	1.2 ± 1.6; 1.6	0.2 ± 1.7; 1.7
Zn-65	-2.5 ± 7.3; 7.3	1.4 ± 4.7; 4.7	0.3 ± 3.5; 3.5	-1.7 ± 3.6; 3.6
Zr-Nb-95	0.1 ± 4.1; 4.1	-0.7 ± 2.3; 2.3	-0.3 ± 1.3; 1.3	0.2 ± 2.6; 2.6
Cs-134	-2.1 ± 3.7; 3.7	-0.1 ± 2.5; 2.5	-0.3 ± 1.8; 1.8	0.5 ± 2.4; 2.4
Cs-137	0.8 ± 3.6; 3.6	0.3 ± 2.9; 2.9	1.1 ± 1.8; 1.8	0.7 ± 2.3; 2.3
Ba-La-140	1.8 ± 5.0; 5.0	-0.5 ± 3.5; 3.5	5.5 ± 4.5; 4.6	-3.1 ± 5.8; 5.8

Table 9. Public Water
Collection: Monthly composites of weekly collections
Required LLD: Gross Beta= 4, H-3=200, 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

BD-22 Wilmington

1996 Collection Period	January	February	March
Lab Code	BDPW-442	BDPW-926	BDPW-2144
Gross Beta	3.9 ± 1.5; 1.7	2.9 ± 1.5; 1.5	3.1 ± 1.7; 1.7
H-3	3,074 ± 167; 450	3,585 ± 177; 519	1,609 ± 131; 255
Mn-54	1.6 ± 2.0; 2.0	-0.2 ± 1.7; 1.7	-0.2 ± 1.9; 1.9
Fe-59	-1.4 ± 3.8; 3.8	-1.1 ± 3.3; 3.3	-4.6 ± 4.6; 4.6
Co-58	2.5 ± 2.3; 2.4	-1.0 ± 1.6; 1.6	1.2 ± 1.9; 1.9
Co-60	1.2 ± 2.2; 2.2	-1.7 ± 2.0; 2.0	1.1 ± 2.0; 2.0
Zn-65	0.4 ± 3.4; 3.4	2.3 ± 3.6; 3.6	0.2 ± 4.3; 4.3
Zr-Nb-95	1.0 ± 3.7; 3.7	1.5 ± 2.1; 2.1	1.6 ± 2.9; 2.9
Cs-134	1.5 ± 2.1; 2.1	0.4 ± 2.0; 2.0	0.2 ± 2.0; 2.0
Cs-137	0.7 ± 2.2; 2.2	0.1 ± 1.9; 1.9	1.1 ± 2.4; 2.4
Ba-La-140	0.8 ± 4.1; 4.1	-1.5 ± 3.1; 3.1	0.6 ± 5.7; 5.7

1996 Collection Period	April	May	June
Lab Code	BDPW-2704	BDPW-3819	BDPW-4476
Gross Beta	3.8 ± 1.6; 1.7	3.3 ± 1.6; 1.7	3.8 ± 1.1; 1.3
H-3	1,099 ± 116; 189	747 ± 109; 149	214 ± 88; 92
Mn-54	2.0 ± 1.4; 1.4	-0.4 ± 2.2; 2.2	-0.1 ± 2.0; 2.0
Fe-59	-0.2 ± 3.5; 3.5	-0.4 ± 4.8; 4.8	-0.4 ± 4.3; 4.3
Co-58	3.6 ± 2.1; 2.2	1.0 ± 2.4; 2.4	1.2 ± 2.2; 2.2
Co-60	-0.9 ± 1.5; 1.5	0.5 ± 2.0; 2.0	-1.3 ± 2.1; 2.1
Zn-65	0.1 ± 3.5; 3.5	-1.6 ± 4.6; 4.6	0.6 ± 4.2; 4.2
Zr-Nb-95	-0.2 ± 2.2; 2.2	-0.9 ± 2.8; 2.8	-0.7 ± 2.6; 2.6
Cs-134	-0.4 ± 1.9; 1.9	1.0 ± 2.1; 2.1	-1.1 ± 2.3; 2.3
Cs-137	0.8 ± 1.6; 1.6	-0.1 ± 2.3; 2.3	0.7 ± 2.0; 2.0
Ba-La-140	3.0 ± 4.3; 4.3	8.1 ± 4.7; 4.8	-1.3 ± 7.0; 7.0

Table 9. Public Water

Collection: Monthly composites of weekly collections

Required LLD: Gross Beta= 4, H-3=200, 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

BD-22 Wilmington

1996 Collection Period	July	August	September
Lab Code	BDPW-5475	BDPW-6079	BDPW-7169
Gross Beta	3.3 ± 1.5 ; 1.5	4.1 ± 1.6 ; 1.7	4.6 ± 1.6 ; 1.8
H-3	2,205 ± 144; 333	1,518 ± 133; 246	3,279 ± 171; 478
Mn-54	0.6 ± 1.8; 1.8	0.9 ± 2.1; 2.1	0.3 ± 3.8; 3.8
Fe-59	-0.6 ± 4.5; 4.5	-3.6 ± 5.9; 5.9	7.0 ± 9.2; 9.2
Co-58	0.3 ± 1.7; 1.7	-0.3 ± 2.9; 2.9	0.4 ± 4.2; 4.2
Co-60	-0.1 ± 1.8; 1.8	1.3 ± 1.8; 1.8	-1.6 ± 3.8; 3.8
Zn-65	-0.2 ± 3.6; 3.6	3.7 ± 5.0; 5.1	-2.6 ± 9.8; 9.8
Zr-Nb-95	-0.9 ± 2.7; 2.7	2.3 ± 4.6; 4.6	3.2 ± 4.5; 4.5
Cs-134	2.1 ± 2.1; 2.1	-0.5 ± 2.3; 2.3	-0.3 ± 3.7; 3.7
Cs-137	0.1 ± 2.0; 2.0	0.1 ± 2.3; 2.3	-3.2 ± 4.6; 4.6
Ba-La-140	4.2 ± 4.8; 4.8	-3.1 ± 9.1; 9.1	-4.2 ± 12.8; 12.8

1996 Collection Period	October	November	December
Lab Code	BDPW-8206	BDPW-8939	BDPW-9573
Gross Beta	3.1 ± 1.2 ; 1.3	3.3 ± 1.5 ; 1.6	2.9 ± 1.6 ; 1.7
H-3	5,111 ± 217; 728	3,293 ± 176; 494	2,069 ± 144; 316
Mn-54	-1.3 ± 2.7; 2.7	0.7 ± 3.1; 3.1	0.4 ± 2.9; 2.9
Fe-59	2.2 ± 7.2; 7.2	6.7 ± 6.9; 6.9	2.2 ± 7.4; 7.4
Co-58	2.3 ± 2.9; 2.9	1.3 ± 2.5; 2.5	0.9 ± 3.4; 3.4
Co-60	0.2 ± 2.7; 2.7	0.4 ± 3.5; 3.5	0.9 ± 2.6; 2.6
Zn-65	-1.6 ± 4.8; 4.8	2.0 ± 6.6; 6.6	0.1 ± 7.1; 7.1
Zr-Nb-95	-2.1 ± 6.0; 6.0	-1.4 ± 4.0; 4.0	-1.5 ± 5.3; 5.3
Cs-134	0.1 ± 2.7; 2.7	-0.5 ± 3.1; 3.1	0.6 ± 3.1; 3.1
Cs-137	0.9 ± 2.7; 2.7	0.4 ± 3.6; 3.6	0.4 ± [illegible]3; 3.3
Ba-La-140	1.9 ± 8.2; 8.2	4.8 ± 11.8; 11.8	-1.6 ± 6.5; 6.5

BRAIDWOOD

MILCH ANIMALS, NEAREST RESIDENCES, AND NEAREST LIVESTOCK CENSUS

BRAIDWOOD

MILCH ANIMALS CENSUS, 1996

A. There is one dairy farm within a 6.2-mile radius of Braidwood Station.

B. Sampling Locations

BD-17 Halpins Dairy Farm
5.6 miles @ 200°

Number of cows being milked - 55

Diet consists of: 10% or less pasture
25% ground grain
65% green chop, hay or silage

BD-18 Biros Dairy Farm
8.7 miles @ 270°

Number of cows being milked - 94

Diet consists of: 25% pasture
25% ground grain
50% green chop

BD-26 Gaddis Dairy Farm
11.2 miles @ 122°

Number of cows being - 60

Diet consists of: 50% hay
50% ground grain

BD-27 Prussner Farm
11.0 miles @ 178°

Number of cows being milked - 46

Diet consists of: No pasture
25% ground grain
75% haylage

Census conducted by A. Lewis on August 21, 1996.

BRAIDWOOD

NEAREST LIVESTOCK CENSUS, 1996

Nearest livestock of the Braidwood Station within a 6.2-mile radius.

Sector	Direction	Distance
A	N	2.6 miles
B	NNE	None
C	NE	0.9 miles
D	ENE	3.3 miles
E	E	2.3 miles
F	ESE	2.3 miles
G	SE	2.7 miles
H	SSE	4.1 miles
J	S	None
K	SSW	5.3 miles
L	SW	4.5 miles
M	WSW	3.8 miles
N	W	1.6 miles
P	WNW	6.5 miles
Q	NW	None
R	NNW	6.5 miles

Census conducted by A. Lewis on August 21, 1996.

BRAIDWOOD

NEAREST RESIDENCE CENSUS, 1996

Nearest resident of the Braidwood Station within a 6.2-mile radius.

Sector	Direction	Distance
A	N	0.5 miles
B	NNE	1.8 miles
C	NE	0.7 miles
D	ENE	0.8 miles
E	E	0.8 miles
F	ESE	2.2 miles
G	SE	2.7 miles
H	SSE	None
J	S	4.2 miles
K	SSW	1.3 miles
L	SW	0.4 miles
M	WSW	0.5 miles
N	W	0.4 miles
P	WNW	0.4 miles
Q	NW	0.4 miles
R	NNW	0.4 miles

Census conducted by A. Lewis on August 19, 1996.

4.0 TLD DATA*

*TLD Data provided by Commonwealth Edison Company.

Commonwealth Edison Company

Date: 20-FEB-97 | Environmental Site Report for Braidwood | Page:

Gamma Radiation Measured in mR by TLDs

Site	Description	Quarter 1 1996	Quarter 2 1996	Quarter 3 1996	Quarter 4 1996
I. INDICATOR LOCATIONS					
a. Air Samplers (2 TLDs per location)					
BD-02	CUSTER PARK	12.1	11.8	14.4	13.7
BD-04	ESSEX	11.4	11.4	13.6	13.1
BD-05	GARDNER	13.9	13.8	16.5	15.4
BD-06	GODLEY	11.2	11.3	13.4	12.7
BD-19	NEARSITE NW	12.4	12.2	14.4	13.7
BD-20	NEARSITE N	11.8	12.3	14.3	14.5
BD-21	NEARSITE NE	11.9	11.7	14.3	13.4
	Air Sampler Mean ± S.D.	12.1 ± 0.9	12.1 ± 0.8	14.4 ± 1.0	13.8 ± 1.0
	Annual Air Sampler Mean ± S.D.				13.1 ± 1.4
b. Inner Ring (100 Series)					
BD-101-3		12.4	11.9	14.1	14.0
BD-101-4		12.3	12.1	14.5	14.0
BD-102-1		11.9	11.8	13.9	13.6
BD-102-2		12.2	11.9	13.7	13.1
BD-103-1		12.3	13.8	14.9	14.2
BD-103-2		12.3	12.8	14.5	14.6
BD-104-1		11.3	11.6	12.9	12.8
BD-104-2		10.9	11.7	13.7	13.0
BD-105-1		11.6	11.8	14.1	13.3
BD-105-2		11.9	11.3	14.3	13.7
BD-106-1		11.6	11.9	13.6	13.7
BD-106-2		11.3	11.8	14.1	12.9
BD-107-1		12.2	12.5	14.5	13.4
BD-107-2		11.9	12.3	13.3	13.6
BD-108-1		11.7	11.8	13.7	13.2
BD-108-2		11.7	12.4	14.2	13.2
BD-109-1		14.1	13.9	16.8	15.9
BD-109-2		14.3	14.1	16.5	16.1
BD-110-1		11.2	11.6	13.9	13.4
BD-110-2		13.2	12.7	15.1	15.2
BD-111A-1		11.3	11.4	14.1	13.6
BD-111A-2		11.2	11.8	13.6	11.8
BD-112-1		11.6	11.2	13.0	12.9
BD-112-2		11.7	11.3	13.6	13.6
BD-113A-1		11.7	12.2	14.1	13.6
BD-113A-2		11.9	11.2	13.9	13.5

Site	Description	Quarter 1 1996	Quarter 2 1996	Quarter 3 1996	Quarter 4 1996
b. Inner Ring (100 Series)					
BD-114-1		11.9	11.7	13.9	13.8
BD-114-2		11.6	11.8	13.9	12.7
BD-115-1		12.8	12.1	13.5	13.5
BD-115-2		12.1	12.3	14.9	14.1
BD-116-1		12.2	12.2	14.2	14.1
BD-116-2		12.9	12.1	14.6	14.6
	Inner Ring Mean ± S.D.	12.0 ± 0.8	12.1 ± 0.7	14.2 ± 0.8	13.7 ± 0.[illegible]
	Annual Inner Ring Mean ± S.D.				13.0 ± 1.2
c. Outer Ring (200 Series)					
BD-201-1		15.8	15.8	18.5	17.5
BD-201-2		13.1	12.9	16.9	16.0
BD-202-1		12.2	11.9	14.0	13.9
BD-202-2		12.1	11.7	13.8	13.8
BD-203-1		13.2	12.8	16.4	14.4
BD-203-2		11.9	11.9	13.7	13.5
BD-204-1		11.2	11.2	13.6	12.8
BD-204-2		11.5	11.0	13.3	12.7
BD-205-1		11.4	11.2	14.0	12.9
BD-205-2		11.1	10.9	13.2	12.6
BD-206-1		12.0	12.2	14.4	13.6
BD-206-2		12.5	12.2	15.1	14.2
BD-207-1		11.1	11.4	13.7	12.4
BD-207-2		11.4	11.3	14.2	13.2
BD-208-1		11.8	11.7	13.8	13.5
BD-208-2		12.1	11.3	13.8	13.0
BD-209-1		15.3	15.0	18.6	16.8
BD-209-2		15.0	14.2	17.6	17.8
BD-210-1		14.2	13.3	17.0	16.3
BD-210-2		12.5	12.6	14.6	14.2
BD-211-1		14.6	14.8	17.8	17.5
BD-211-2		14.8	14.8	17.8	16.9
BD-212-3		12.0	11.9	14.2	13.7
BD-212-4		15.1	14.4	17.5	17.2
BD-213-3		12.4	11.3	14.1	12.8
BD-213-4		11.4	11.0	14.0	12.6
D-214-1		12.6	12.9	15.2	14.2
D-214-2		13.7	14.0	16.3	16.7
D-215-1		11.8	11.5	13.8	12.8
D-215-2		11.6	11.2	13.9	13.3
D-216-1		15.1	14.8	17.7	14.1
D-216-2		12.4	12.4	14.9	17.8
	Outer Ring Mean ± S.D.	12.8 ± 1.4	12.5 ± 1.4	15.2 ± 1.7	14.5 ± 1.[illegible]
	Annual Outer Ring Mean ± S.D.				13.7 ± 1.[illegible]
	INDICATOR LOCATION MEAN ± S.D.	12.4 ± 1.2	12.3 ± 1.1	14.6 ± 1.4	14.1 ± 1.[illegible]
	Annual INDICATOR LOCATION MEAN ± S.D.				13.3 ± 1.6

Site	Description	Quarter 1 1996	Quarter 2 1996	Quarter 3 1996	Quarter 4 1996
II. CONTROL LOCATIONS (2 TLDs per location)					
BD-03	COUNTY LINE ROAD	12.4	11.9	14.8	14.1
	CONTROL LOCATION Mean ± S.D.				
	Annual CONTROL LOCATION Mean ± S.D.				13.3 ± 1.4
III. SPECIAL INTEREST LOCATIONS (1 TLD per location)					
BD-302-1	RESTRICTED AREA FENCE/NORTH OF DAM	14.7	15.9	19.4	18.6 *
BD-305-1	FOSSIL AREA	12.3	12.1	14.4	12.6 *
BD-306-2	HUNTING/FISHING COOLING ACCESS SITE	10.9	10.9	12.9	11.3 *
BD-309	HUNTING/FISHING COOLING ACCESS SITE	13.8	13.8	15.9	14.3 *
	SPECIAL INTEREST LOCATION Mean ± S.D.	12.9 ± 1.7	13.2 ± 2.2	15.7 ± 2.8	14.2 ± 3.2
	Annual SPECIAL INTEREST LOCATION Mean ± S.D.				14.0 ± 2.5

TS: "*" Indicates lost dosimeter. A portion of the Dose was estimated.
"@" Indicates edited dosimeter. The original Dose was replaced with an estimated value.

5.0 GRAPHS OF DATA TRENDS

Air Particulates - Gross Beta

BD-03(C) County Line Road

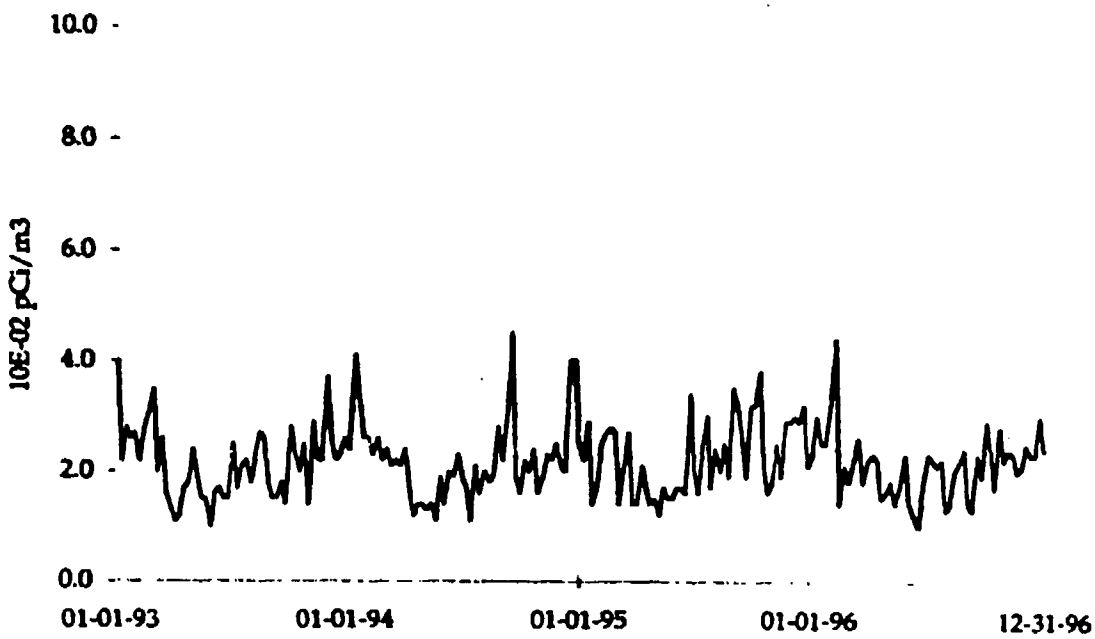


Figure 1. Continuous collection with weekly exchange of particulate filter.

BD-06 Godley

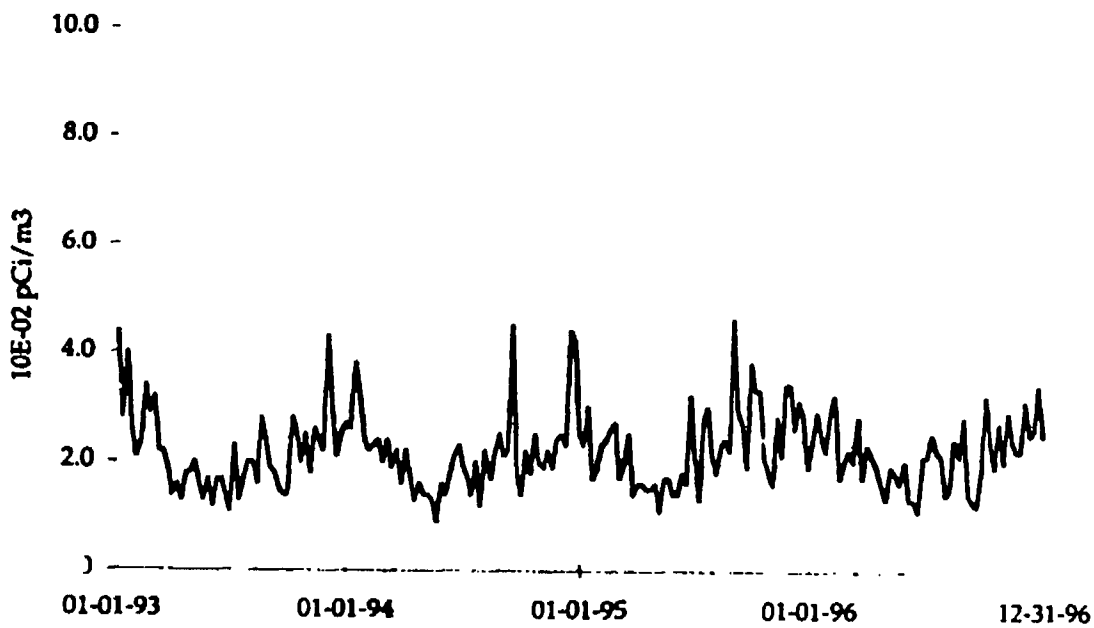


Figure 2. Continuous collection with weekly exchange of particulate filter.

Air Particulates - Gross Beta

BD-19 Nearsite, NW

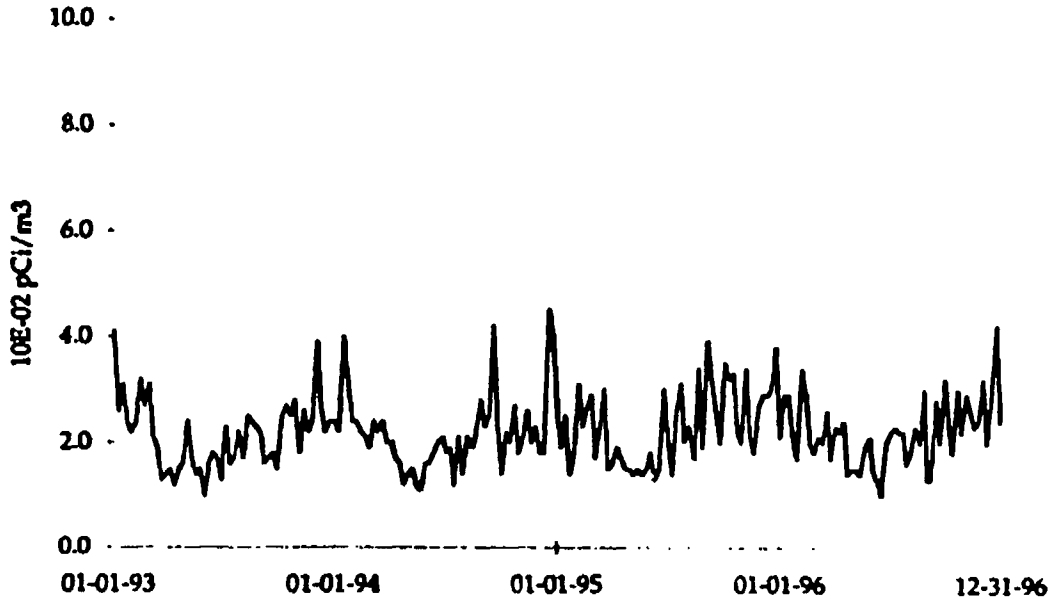
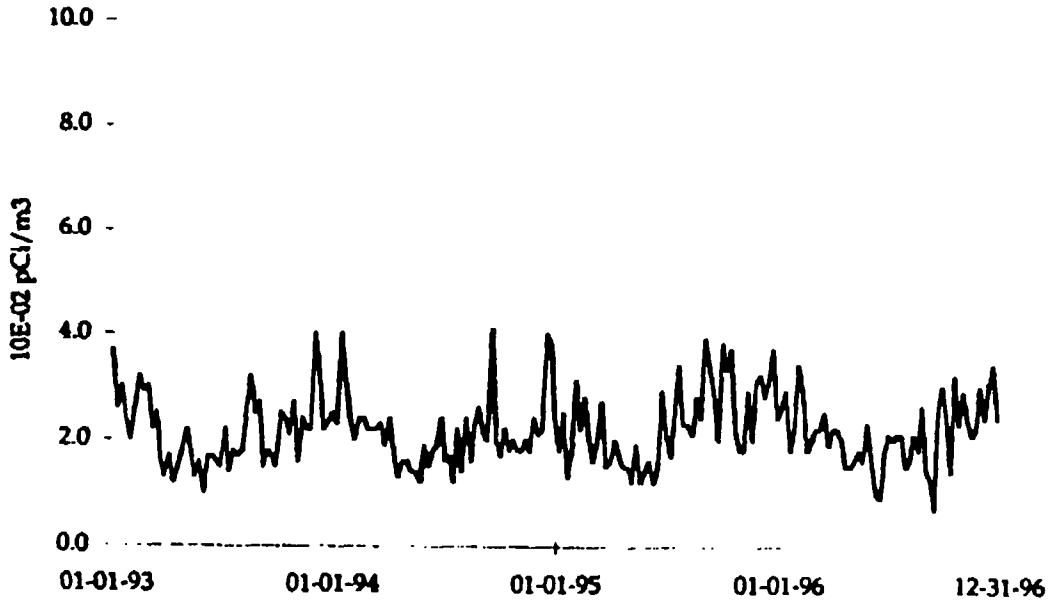


Figure 3. Continuous collection with weekly exchange of particulate filter.

BD-20 Nearsite, N



Air Particulates - Gross Beta

Figure 4. Continuous collection w.. ı weekly exchange of particulate filter.

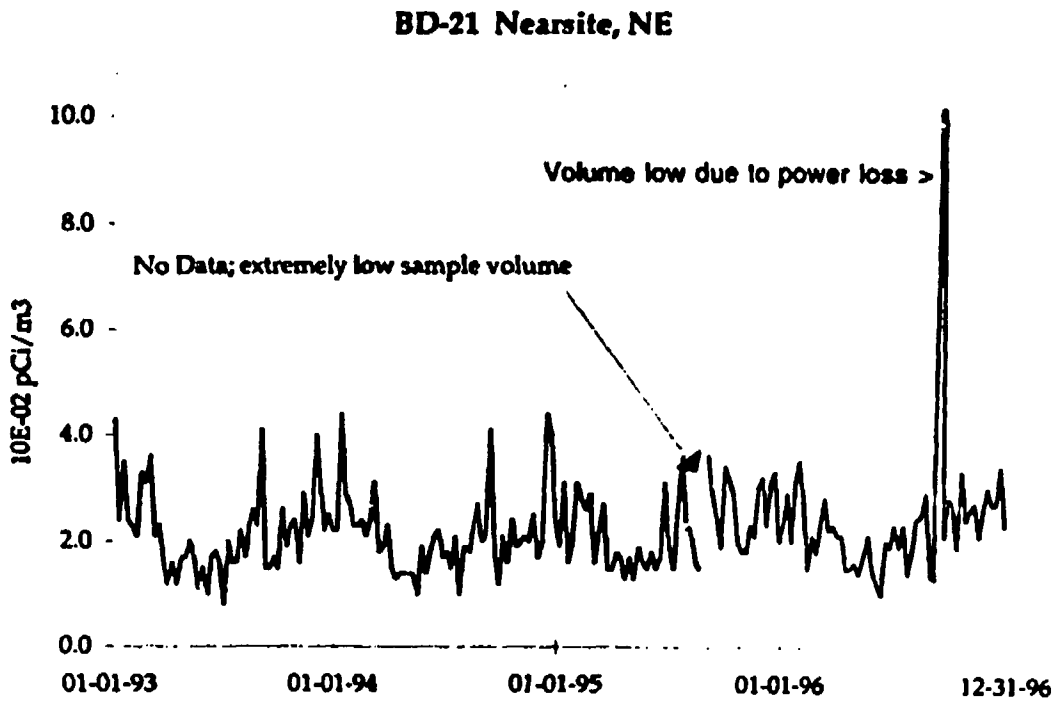


Figure 5. Continuous collection with weekly exchange of particulate filter.

BD-10 Kankakee River, Downstream

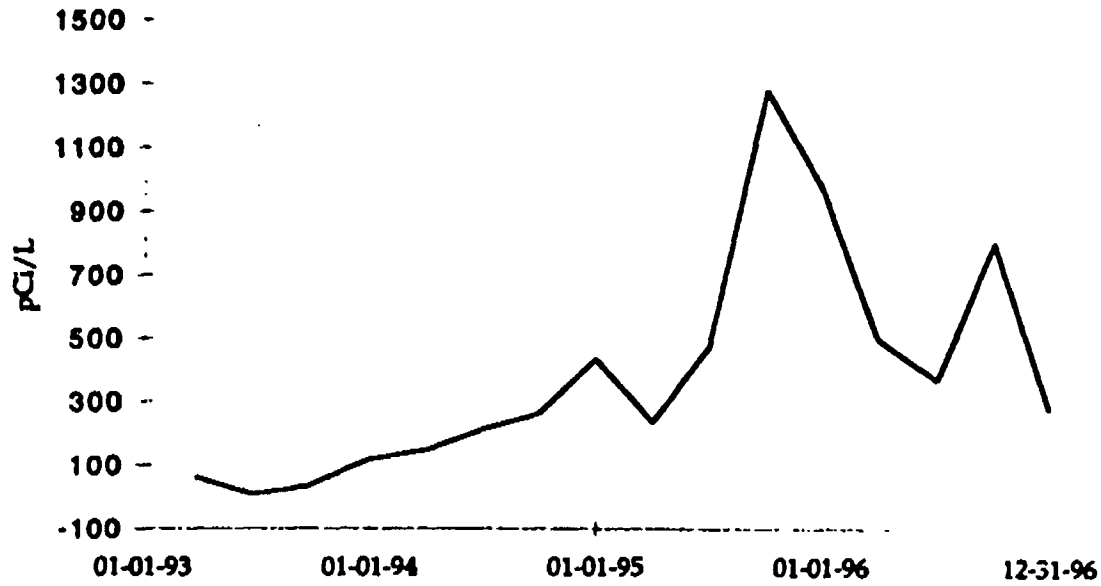


Figure 6. Quarterly composites of weekly collections.

BD-25(C) Kankakee River, Upstream

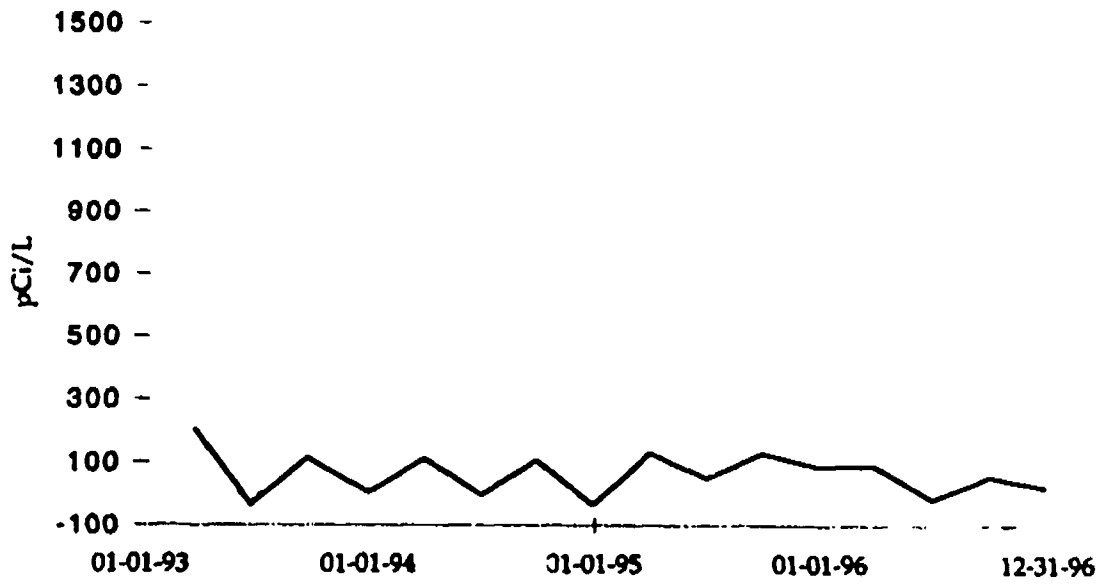


Figure 7. Quarterly composites of weekly collections.

BD-13 Braidwood City Hall Well

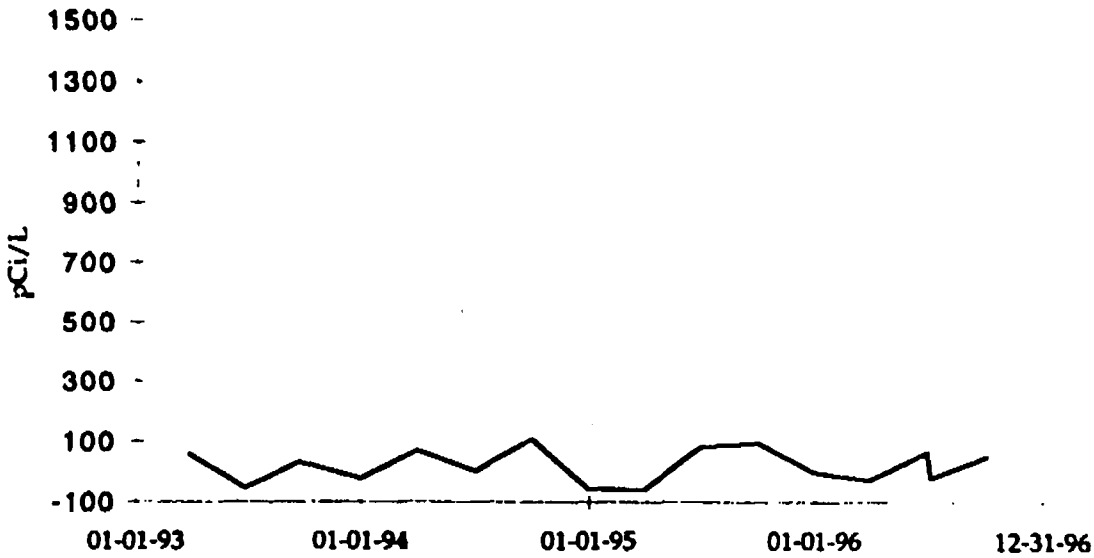


Figure 8. Quarterly composites of biweekly collections until 4th quarter of 1995. Sample collected quarterly upon implemention of UREMP in November 1995.

Public Water-Tritium

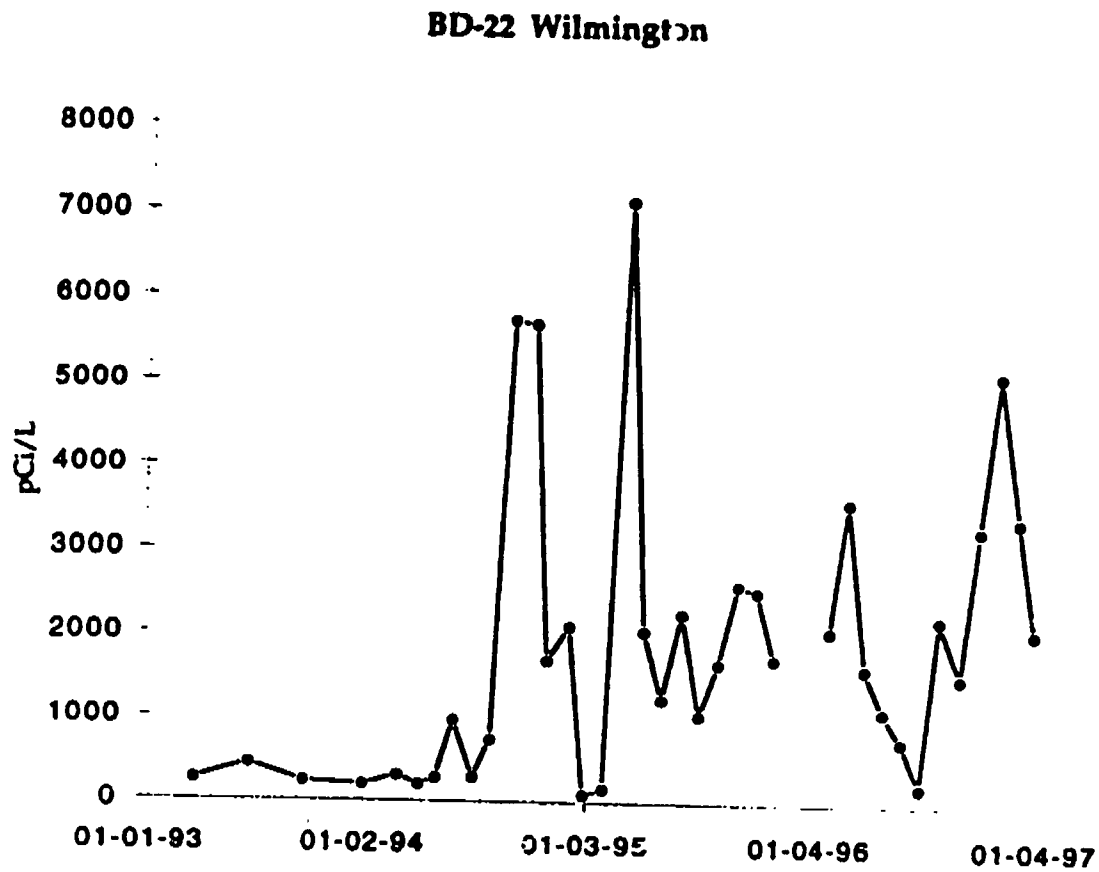


Figure 14. Monthly composites of weekly collections.

APPENDIX IV

ERRATA DATA

ERRATA DATA

1.0 In the fourth quarter of 1996 at Braidwood Station, TLD locations BD-111a-2, BD-302-1, BD-305-1, BD-305-2 and BD-309 were monitored using spare TLDs. Due to a discrepancy in the Teledyne Sampling Procedures Manual, the sample collector did not record the serial number of the spare TLDs on the TLD Check-off Sheet. As a result, the dose to the locations could not be determined. The manual (Section 6.12.3.4.c) instructs the collector to "record the date, time and location of the replacement..."

A memo was sent to all sample collectors on January 10, 1997 instructing them to record the serial numbers of any spare TLDs placed in the field. A revision will be made to the Teledyne Sampling Procedures Manual, on or before June 30, 1997, to include this information.

2.0 On March 6, 1997, during a review of Commonwealth Edison's current ODCM, it was discovered that since 1991, when ComEd began processing its environmental TLDs in-house, ComEd has not been performing an interlaboratory comparison program to assess measurements of environmental radiation for those TLDs. This is required by section 5.3.1 of the ODCM.

Corrective action was begun in the second quarter of 1997, during which ComEd populated its stations' direct radiation environmental locations with its own environmental TLDs as well as with TLDs supplied by a vendor. The vendor's environmental TLD program does comply with section 5.3.1 of ComEd's ODCM. ComEd will develop an interlaboratory comparison program for its own environmental TLDs and will commence interlaboratory comparison as soon as its program is satisfactorily developed. The TLD records for environmental monitoring will be ComEd's TLDs, provided ComEd has successfully implemented the interlaboratory comparison program. Otherwise, the vendor's TLDs will be ComEd's environmental dose of record.

APPENDIX V

INTERLABORATORY COMPARISON PROGRAM RESULTS

Appendix V

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 know 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 A-1 were obtained through participation in the environmental sample crosscheck program for milk, water, air filters, and food samples during the current year. This program is conducted by the U.S. Environmental Protection Agency Office of Research and Developement National Exposure Research Laboratory Characterization Research Division-Las Vegas, Nevada.

Table A-2 lists results of the analyses on in-house "spiked" samples.

Table A-3 lists results of the in-house "blank" samples.

Table A-4 lists results of the in-house "duplicate" program.

Table A-5 list results of the mixed analyte performance evaluation program.

Table A-6 list results of the Environmental Measurement Laboratory Quality Assessment Program.

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

Table A-1. U.S. Environmental Protection Agency's crosscheck program, comparison of EPA and Teledyne Brown Engineering Environmental Services, Midwest Laboratory results for various sample media[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-752	Water	Jan, 1996	Gr. Alpha	12.1 ± 5.0	3.4 - 20.8	19.5 ± 1.5;2.8
STW-752	Water	Jan, 1996	Gr. Beta	7.0 ± 5.0	0.0 - 15.7	7.9 ± 0.7;1.4
STW-753	Water	Feb, 1996	I-131	67.0 ± 7.0	54.9 - 79.1	70.7 ± 1.5;7.2
STW-761	Water	Mar, 1996	H-3	22002.0 ± 2200.0	18185.1 - 25818.9	22776.7 ± 185.0;3103.1
		Results were inadvertently not reported due to administrative error in laboratory.				
STW-762	Water	Apr, 1996	Gr. Alpha	74.8 ± 18.7	42.4 - 107.2	63.8 ± 2.4;8.1
STW-762	Water	Apr, 1996	Ra-226	3.0 ± 0.5	2.1 - 3.9	2.9 ± 0.1;0.3
STW-762	Water	Apr, 1996	Ra-228	5.0 ± 1.3	2.7 - 7.3	4.6 ± 0.2;0.5
STW-762	Water	Apr, 1996	Uranium	58.4 ± 5.8	48.3 - 68.5	57.9 ± 0.5;5.8
STW-763	Water	Apr, 1996	Co-60	31.0 ± 5.0	22.3 - 39.7	32.7 ± 0.6;4.7
STW-763	Water	Apr, 1996	Cs-134	46.0 ± 5.0	37.3 - 54.7	43.0 ± 1.0;6.3
STW-763	Water	Apr, 1996	Cs-137	50.0 ± 5.0	41.3 - 58.7	52.3 ± 2.1;7.8
STW-763	Water	Apr, 1996	Gr. Beta	166.9 ± 25.0	123.5 - 210.3	154.9 ± 6.8;24.8
STW-763	Water	Apr, 1996	Sr-89	43.0 ± 5.0	34.3 - 51.7	42.0 ± 3.6;5.5
STW-763	Water	Apr, 1996	Sr-90	16.0 ± 5.0	7.3 - 24.7	15.3 ± 2.9;3.3
STW-764	Water	Jun, 1996	Ba-133	745.0 ± 75.0	614.9 - 875.1	745.0 ± 19.5;109.0
STW-764	Water	Jun, 1996	Co-60	99.0 ± 5.0	90.3 - 107.7	97.0 ± 3.6;14.4
STW-764	Water	Jun, 1996	Cs-134	79.0 ± 5.0	70.3 - 87.7	72.3 ± 1.2;10.5
STW-764	Water	Jun, 1996	Cs-137	197.0 ± 10.0	179.7 - 214.3	201.3 ± 2.3;29.1
STW-764	Water	Jun, 1996	Zn-65	300.0 ± 30.0	248.0 - 352.0	298.0 ± 6.2;43.4
STW-765	Water	Jun, 1996	Ra-226	4.9 ± 0.7	3.7 - 6.1	4.8 ± 0.1;0.5
STW-765	Water	Jun, 1996	Ra-228	9.0 ± 2.3	5.0 - 13.0	8.7 ± 0.5;1.0
STW-765	Water	Jun, 1996	Uranium	20.2 ± 3.0	15.0 - 25.4	20.4 ± 0.8;2.2
STW-767	Water	Jul, 1996	Sr-89	25.0 ± 5.0	16.3 - 33.7	24.0 ± 2.0;3.1
STW-767	Water	Jul, 1996	Sr-90	12.0 ± 5.0	3.3 - 20.7	11.3 ± 1.2;1.6
STW-768	Water	Jul, 1996	Gr. Alpha	24.4 ± 6.1	13.8 - 35.0	20.1 ± 2.0;3.1
STW-768	Water	Jul, 1996	Gr. Beta	44.8 ± 5.0	36.1 - 53.5	40.4 ± 3.2;7.0

Table A-1. U.S. Environmental Protection Agency's crosscheck program, comparison of EPA and Teledyne Brown Engineering Environmental Services, Midwest Laboratory results for various sample media[a].

				Concentration in pCi/L[b]		
Lab Code	Sample Type	Date Collected	Analysis	EPA Result[c] 1s, N=1	Control Limits	TBEESML Results ± 2 Sigma[d]
STW-774	Water	Sep, 1996	Ra-226	14.0 ± 2.1	10.4 - 17.6	13.6 ± 0.4;1.4
STW-774	Water	Sep, 1996	Ra-228	4.7 ± 1.2	2.6 - 6.8	5.4 ± 0.4;0.6
STW-774	Water	Sep, 1996	Uranium	10.1 ± 3.0	4.9 - 15.3	10.0 ± 0.2;1.0
STW-775	Water	Oct, 1996	I-131	27.0 ± 6.0	16.6 - 37.4	26.7 ± 2.3;3.5
STW-778	Water	Oct, 1996	Gr. Alpha	10.3 ± 5.0	1.6 - 19.0	10.2 ± 2.1;2.4
STW-778	Water	Oct, 1996	Gr. Beta	34.6 ± 5.0	25.9 - 43.3	32.0 ± 1.6;5.2

[a] Results obtained by Teledyne Brown Engineering Environmental Services Midwest Laboratory as a participant in the environmental sample crosscheck program operated by the U.S. Environmental Protection Agency Office of Research and Developement National Exposure Research Laboratory Characterization Research Division-Las Vegas, Nevada.

[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; and food products, which are in uCi/kg.

[c] USEPA results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the EPA.

[d] Unless otherwise indicated, the TBEESML results are given as the mean ± 2 standard deviations for three determinations. The numbers after the semi-colon are the Total Propagated Uncertainty of the result.

Table A-2. In-house "spike" samples.

Lab Code	Sample Type	Date Collected	Analysis	Accepted Rejected	Concentration in pCi/L[a] Known Activity	Control Limits[b]	TBEESML Results 2s, n=1[c]
SPCH-607	Charcoal Canister	Feb, 1996	I-131(g)	A	0.3	0.2 - 0.3	0.3 ± 0.0;0.0
SPAP-609	Air Filter	Feb, 1996	Cs-137	A	1.9	1.5 - 2.3	2.2 ± 0.0;0.2
SPAP-611	Air Filter	Feb, 1996	Gr. Beta	A	8.0	6.5 - 9.5	6.8 ± 0.0;0.7
SPW-621	Water	Feb, 1996	I-131	A	95.9	77.7 - 114.1	86.2 ± 0.7;8.6
SPW-621	Water	Feb, 1996	I-131(g)	A	95.9	75.6 - 116.2	96.2 ± 4.7;10.7
SPW-622	Water	Feb, 1996	Gr. Alpha	A	82.8	62.8 - 102.8	96.4 ± 6.6;11.7
SPW-622	Water	Feb, 1996	Gr. Beta	A	85.7	68.1 - 103.3	83.7 ± 3.3;9.0
SPW-623	Water	Feb, 1996	H-3	A	17833.0	14185.3 - 21480.7	18228.7 ± 391.3;1864.4
SPW-624	Water	Feb, 1996	Co-60	A	239.3	188.1 - 290.5	231.0 ± 14.5;27.3
SPW-624	Water	Feb, 1996	Cs-137	A	428.3	336.3 - 520.3	428.3 ± 24.1;49.1
SPMI-625	Milk	Feb, 1996	Cs-137	A	53.5	41.1 - 65.9	63.1 ± 3.2;7.1
SPMI-625	Milk	Feb, 1996	I-131	A	48.0	38.3 - 57.6	47.8 ± 0.7;4.8
SPMI-625	Milk	Feb, 1996	I-131(g)	A	48.0	37.6 - 58.4	48.0 ± 2.9;5.6
SPVE-1068	Vegetation	Feb, 1996	I-131(g)	A	0.8	0.6 - 0.9	0.8 ± 0.0;0.1
SPMI-2217	Milk	Apr, 1996	Cs-134	A	37.1	29.1 - 45.1	35.4 ± 2.5;4.3
SPMI-2217	Milk	Apr, 1996	Cs-137	A	106.6	83.1 - 130.1	117.2 ± 5.4;12.9
SPW-2219	Water	Apr, 1996	Co-60	A	23.4	16.8 - 30.0	26.0 ± 3.4;4.2
SPW-2219	Water	Apr, 1996	Cs-134	A	37.1	28.7 - 45.5	36.1 ± 2.9;4.6
SPW-2219	Water	Apr, 1996	Cs-137	A	106.6	82.6 - 130.6	117.1 ± 6.4;13.4
SPW-2221	Water	Apr, 1996	Gr. Alpha	A	82.8	64.7 - 100.9	76.9 ± 6.1;9.8
SPW-2221	Water	Apr, 1996	Gr. Beta	A	136.8	109.0 - 164.6	132.3 ± 5.0;14.2
SPW-2223	Water	Apr, 1996	H-3	A	17937.0	14354.0 - 21520.0	17538.9 ± 354.1;1789.3
SPW-2283	Water	Apr, 1996	I-129	A	14.9	11.3 - 18.6	15.7 ± 1.4;2.1
SPW-2285	Water	Apr, 1996	Fe-55	A	1.1	0.5 - 1.7	1.2 ± 0.5;0.5
SPW-2287	Water	Apr, 1996	Tc-99	A	66.0	48.8 - 83.2	70.5 ± 7.9;10.6
SPW-2289	Water	Apr, 1996	Am-241	A	82.8	66.8 - 98.8	77.4 ± 0.4;7.8
SPW-2289	Water	Apr, 1996	Cm-244	A	36.4	28.6 - 44.2	37.9 ± 1.7;4.2
SPW-2291	Water	Apr, 1996	Th-230	A	45.0	35.9 - 54.1	41.6 ± 1.9;4.6
SPW-2292	Water	Apr, 1996	U-238	A	45.4	35.8 - 55.0	46.2 ± 2.0;5.0
SPF-3420	Fish	May, 1996	Cs-137	A	0.1	0.1 - 0.1	0.1 ± 0.0;0.0
SPW-3439	Water	May, 1996	I-131	A	25.3	20.2 - 30.4	23.9 ± 0.8;2.5
SPMI-3441	Milk	May, 1996	I-131	A	25.3	20.4 - 30.2	23.5 ± 0.5;2.4
SPMI -	Milk	Jun, 1996	Cs-134	A	31.3	24.3 - 38.3	28.1 ± 2.6;3.8
SPMI -	Milk	Jun, 1996	Cs-137	A	42.5	32.3 - 52.7	47.0 ± 3.7;6.0
SPMI -	Milk	Jun, 1996	I-131(g)	A	40.4	31.0 - 49.8	39.4 ± 3.6;5.3
SPMI-4054	Milk	Jun, 1996	Cs-134	A	31.3	24.3 - 38.3	28.1 ± 2.6;3.8

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				Concentration in pCi/L[b]		
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STW-774	Water	Sep, 1996	Ra-226	14.0 ± 2.1	10.4 - 17.6	13.6 ± 0.4;1.4
STW-774	Water	Sep, 1996	Ra-228	4.7 ± 1.2	2.6 - 6.8	5.4 ± 0.4;0.6
STW-774	Water	Sep, 1996	Uranium	10.1 ± 3.0	4.9 - 15.3	10.0 ± 0.2;1.0
STW-775	Water	Oct, 1996	I-131	27.0 ± 6.0	16.6 - 37.4	26.7 ± 2.3;3.5
STW-778	Water	Oct, 1996	Gr. Alpha	10.3 ± 5.0	1.6 - 19.0	10.2 ± 2.1;2.4
STW-778	Water	Oct, 1996	Gr. Beta	34.6 ± 5.0	25.9 - 43.3	32.0 ± 1.6;5.2

[a] Results obtained by Teledyne Brown Engineering Environmental Services Midwest Laboratory as a participant in the environmental sample crosscheck program operated by the U.S. Environmental Protection Agency Office of Research and Developement National Exposure Research Laboratory Characterization Research Division-Las Vegas, Nevada.

[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; and food products, which are in uCi/kg.

[c] USEPA results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the EPA.

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SPAP-609	Air Filter	Feb, 1996	Cs-137	A	1.9	1.5 - 2.3	2.2 ± 0.0;0.2
SPAP-611	Air Filter	Feb, 1996	Gr. Beta	A	8.0	6.5 - 9.5	6.8 ± 0.0;0.7
SPW-621	Water	Feb, 1996	I-131	A	95.9	77.7 - 114.1	86.2 ± 0.7;8.6
SPW-621	Water	Feb, 1996	I-131(g)	A	95.9	75.6 - 116.2	96.2 ± 4.7;10.7
SPW-622	Water	Feb, 1996	Gr. Alpha	A	82.8	62.8 - 102.8	96.4 ± 6.6;11.7
SPW-622	Water	Feb, 1996	Gr. Beta	A	85.7	68.1 - 103.3	83.7 ± 3.3;9.0
SPW-623	Water	Feb, 1996	H-3	A	17833.0	14185.3 - 21480.7	18228.7 ± 391.3;1864.4
SPW-624	Water	Feb, 1996	Co-60	A	239.3	188.1 - 290.5	231.0 ± 14.5;27.3
SPW-624	Water	Feb, 1996	Cs-137	A	428.3	336.3 - 520.3	428.3 ± 24.1;49.1
SPMI-625	Milk	Feb, 1996	Cs-137	A	53.5	41.1 - 65.9	63.1 ± 3.2;7.1
SPMI-625	Milk	Feb, 1996	I-131	A	48.0	38.3 - 57.6	47.8 ± 0.7;4.8
SPMI-625	Milk	Feb, 1996	I-131(g)	A	48.0	37.6 - 58.4	48.0 ± 2.9;5.6
SPVE-1068	Vegetation	Feb, 1996	I-131(g)	A	0.8	0.6 - 0.9	0.8 ± 0.0;0.1
SPMI-2217	Milk	Apr, 1996	Cs-134	A	37.1	29.1 - 45.1	35.4 ± 2.5;4.3
SPMI-2217	Milk	Apr, 1996	Cs-137	A	106.6	83.1 - 130.1	117.2 ± 5.4;12.9
SPW-2219	Water	Apr, 1996	Co-60	A	23.4	16.8 - 30.0	26.0 ± 3.4;4.2
SPW-2219	Water	Apr, 1996	Cs-134	A	37.1	28.7 - 45.5	36.1 ± 2.9;4.6
SPW-2219	Water	Apr, 1996	Cs-137	A	106.6	82.6 - 130.6	117.1 ± 6.4;13.4
SPW-2221	Water	Apr, 1996	Gr. Alpha	A	82.8	64.7 - 100.9	76.9 ± 6.1;9.8
SPW-2221	Water	Apr, 1996	Gr. Beta	A	136.8	109.0 - 164.6	132.3 ± 5.0;14.2
SPW-2223	Water	Apr, 1996	H-3	A	17937.0	14354.0 - 21520.0	17538.9 ± 354.1;1789.3
SPW-2283	Water	Apr, 1996	I-129	A	14.9	11.3 - 18.6	15.7 ± 1.4;2.1
SPW-2285	Water	Apr, 1996	Fe-55	A	1.1	0.5 - 1.7	1.2 ± 0.5;0.5
SPW-2287	Water	Apr, 1996	Tc-99	A	66.0	48.8 - 83.2	70.5 ± 7.9;10.6
SPW-2289	Water	Apr, 1996	Am-241	A	82.8	66.8 - 98.8	77.4 ± 0.4;7.8
SPW-2289	Water	Apr, 1996	Cm-244	A	36.4	28.6 - 44.2	37.9 ± 1.7;4.2
SPW-2291	Water	Apr, 1996	Th-230	A	45.0	35.9 - 54.1	41.6 ± 1.9;4.6
SPW-2292	Water	Apr, 1996	U-238	A	45.4	35.8 - 55.0	46.2 ± 2.0;5.0
SPF-3420	Fish	May, 1996	Cs-137	A	0.1	0.1 - 0.1	0.1 ± 0.0;0.0
SPW-3439	Water	May, 1996	I-131	A	25.3	20.2 - 30.4	23.9 ± 0.8;2.5
SPMI-3441	Milk	May, 1996	I-131	A	25.3	20.4 - 30.2	23.5 ± 0.5;2.4
SPMI -	Milk	Jun, 1996	Cs-134	A	31.3	24.3 - 38.3	28.1 ± 2.6;3.8
SPMI -	Milk	Jun, 1996	Cs-137	A	42.5	32.3 - 52.7	47.0 ± 3.7;6.0
SPMI -	Milk	Jun, 1996	I-131(g)	A	40.4	31.0 - 49.8	39.4 ± 3.6;5.3
SPMI-4054	Milk	Jun, 1996	Cs-134	A	31.3	24.3 - 38.3	28.1 ± 2.6;3.8

Table A-2. In-house "spike" samples.

Lab Code	Sample Type	Date Collected	Analysis	Accepted Rejected	Concentration in pCi/L[a] Known Activity	Control Limits[b]	TBEESML Results 2s, n=1[c]
SPMI-4054	Milk	Jun, 1996	Cs-137	A	42.5	32.3 - 52.7	47.0 ± 3.7;6.0
SPMI-4054	Milk	Jun, 1996	I-131	A	40.3	32.7 - 47.9	35.7 ± 0.6;3.6
SPMI-4054	Milk	Jun, 1996	I-131(g)	A	40.4	31.0 - 49.8	39.4 ± 3.6;5.3
SPW-4246	Water	Jun, 1996	Gr. Alpha	A	82.7	66.6 - 98.8	70.0 ± 3.6;7.9
SPW-4246	Water	Jun, 1996	Gr. Beta	A	136.1	108.1 - 164.1	140.5 ± 3.2;14.4
SPAP-4750	Air Filter	Jul, 1996	Cs-137	A	1.9	1.5 - 2.3	2.2 ± 0.0;0.2
SPW-4936	Water	Jul, 1996	Co-60	A	112.6	82.7 - 142.5	105.7 ± 15.4;18.7
SPW-4936	Water	Jul, 1996	Cs-134	A	135.2	104.9 - 165.5	127.1 ± 10.9;16.7
SPW-4936	Water	Jul, 1996	Cs-137	A	211.9	160.8 - 263.0	220.2 ± 20.2;29.9
SPMI-4938	Milk	Jul, 1996	Cs-134	A	135.2	104.4 - 166.0	130.4 ± 11.4;17.3
SPMI-4938	Milk	Jul, 1996	Cs-137	A	211.9	159.2 - 264.6	229.2 ± 21.6;31.5
SPW-4942	Water	Jul, 1996	Fe-55	A	1.8	1.0 - 2.5	2.0 ± 0.5;0.6
SPF-4996	Fish	Jul, 1996	Cs-137	A	0.1	0.1 - 0.1	0.1 ± 0.0;0.0
SPAP-5669	Air Filter	Jul, 1996	Gr. Beta	A	7.8	6.3 - 9.3	7.0 ± 0.0;0.7
SPW-5700	Water	Aug, 1996	H-3	A	51058.0	40958.4 - 61157.6	49589.0 ± 589.5;4993.8
SPMI-7384	Milk	Oct, 1996	I-131	A	39.9	32.3 - 47.5	35.0 ± 0.9;3.6
SPMI-7385	Milk	Oct, 1996	Cs-134	A	21.4	16.2 - 26.6	19.5 ± 2.4;3.1
SPMI-7385	Milk	Oct, 1996	Cs-137	A	24.1	17.0 - 31.2	26.0 ± 3.9;4.7
SPMI-7385	Milk	Oct, 1996	I-131(g)	A	114.1	89.3 - 138.9	117.3 ± 6.4;13.4
SPMI-7444	Milk	Oct, 1996	I-131	A	79.9	56.1 - 103.7	64.5 ± 14.4;15.8
SPW-7444	Water	Oct, 1996	I-131(g)	A	79.9	53.7 - 106.1	82.2 ± 16.2;18.2
SPMI-7445	Milk	Oct, 1996	I-131	A	199.7	156.0 - 243.4	235.5 ± 2.8;23.7
SPW-7445	Water	Oct, 1996	I-131(g)	A	199.7	156.0 - 243.4	190.9 ± 14.1;23.7
SPMI-7685	Milk	Oct, 1996	I-131	A	114.1	92.2 - 136.0	103.6 ± 1.5;10.5
SPAP-2	Air Filter	Oct, 1996	Gr. Beta	A	6.0	4.8 - 7.2	6.0 ± 0.0;0.6
SPSO-2478	Soil	Oct, 1996	Cs-134	A	0.2	0.1 - 0.2	0.2 ± 0.0;0.0
SPSO-2478	Soil	Oct, 1996	Cs-137	A	0.4	0.3 - 0.5	0.5 ± 0.0;0.1
SPCH-747	Charcoal Canister	Oct, 1996	I-131(g)	A	0.4	0.3 - 0.4	0.4 ± 0.0;0.0
SPCH-747	Charcoal Canister	Oct, 1996	I-131(g)	A	0.5	0.4 - 0.6	0.5 ± 0.0;0.1
SPAP-7476	Air Filter	Oct, 1996	Cs-137	A	1.9	1.5 - 2.3	2.1 ± 0.0;0.2
SPW-8734	Water	Nov, 1996	Co-60	A	43.0	30.3 - 55.7	42.4 ± 7.2;8.4
SPW-8734	Water	Nov, 1996	Cs-134	A	30.1	19.9 - 40.3	29.0 ± 6.6;7.2
SPW-8734	Water	Nov, 1996	Cs-137	A	31.5	18.3 - 44.7	35.1 ± 9.5;10.1
SPW-8740	Water	Nov, 1996	H-3	A	25075.0	19992.4 - 30157.6	25383.5 ± 433.5;2575.1

Table A-2. In-house "spike" samples.

Lab Code	Sample Type	Date Collected	Analysis	Accepted Rejected	Concentration in pCi/L[a] Known Activity	Control Limits[b]	TBEESML Results 2s, n=1[c]

[a] 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; and food products, which are in uCi/kg.

[b] Control limits are based on the known value ± 10%+TPU (where all parametric uncertainties, other than countin statistics, are less than 5%).

[c] All samples are the results of single determinations. The result is reported in the following format: Activity ± Counting Error ; Total Propagated Uncertainty.

NOTE: For fish, jello is used for the spike matrix. For vegetation, sawdust is used for the spike matrix.

Table A-3. In-house "blank" samples.

Lab Code	Sample Type	Sample Date	Analysis	Concentration pCi/L[a]. Teledyne Results (4.66 Sigma) LLD	Activity[b]	Acceptance Criteria (4.66 Sigma)
SPW-7	Water	Jan 1996	Ra-226	<0.02	0.02±0.13;0.13	<1.0
SPW-2	Water	Feb 1996	Ra-226	<0.02	0.01±0.02;0.02	<1.0
SPCH-608	Charcoal Canister	Feb 1996	I-131(g)	<2.7	-0.10±1.63;1.63	<9.6
SPAP-610	Air Filter	Feb 1996	Co-60	<4.1	3.46±3.39;3.41	<10.0
SPAP-610	Air Filter	Feb 1996	Cs-134	<3.6	-0.25±2.94;2.94	<10.0
SPAP-610	Air Filter	Feb 1996	Cs-137	<2.4	-0.31±2.53;2.53	<10.0
SPAP-612	Air Filter	Feb 1996	Gr. Beta	<0.4	0.32±0.29;0.29	<3.2
SPW-627	Water	Feb 1996	Co-60	<3.0	1.70±1.60;1.62	<10.0
SPW-627	Water	Feb 1996	Cs-134	<2.5	-0.36±1.66;1.66	<10.0
SPW-627	Water	Feb 1996	Cs-137	<3.2	0.33±1.60;1.60	<10.0
SPW-627	Water	Feb 1996	Gr. Alpha	<1.0	0.20±0.93;0.93	<1.0
SPW-627	Water	Feb 1996	Gr. Beta	<3.2	2.26±1.76;1.80	<3.2
SPW-627	Water	Feb 1996	I-131	<0.4	-0.21±0.32;0.32	<0.5
SPW-628	Water	Feb 1996	Co-60	<2.6	-1.38±2.18;2.19	<10.0
SPW-628	Water	Feb 1996	Cs-134	<3.1	0.95±2.11;2.11	<10.0
SPW-628	Water	Feb 1996	Cs-137	<3.8	0.55±2.31;2.31	<10.0
SPW-628	Water	Feb 1996	I-131	<0.5	-0.18±0.35;0.35	<0.5
SPW-629	Water	Feb 1996	H-3	<197	-12.47±97.17;97.18	<200.0
SPMI-630	Milk	Feb 1996	Co-60	<3.5	1.26±1.79;1.80	<10.0
SPMI-630	Milk	Feb 1996	Cs-134	<2.5	-0.12±1.53;1.53	<10.0
SPMI-630	Milk	Feb 1996	Cs-137	<2.6	0.22±1.44;1.44	<10.0
SPMI-630	Milk	Feb 1996	I-131	<0.3	-0.07±0.24;0.24	<0.5
SPMI-630	Milk	Feb 1996	Sr-89	<0.9	-0.20±1.27;1.27	<5.0
SPMI-630	Milk	Feb 1996	Sr-90	N/A	1.48±0.40;0.42	<1.0
Low level of Sr-90 concentration in milk (1-5 pCi/L) is not unusual.						
SPVE-1069	Vegetation	Feb 1996	I-131(g)	<0.012	0.00±0.01;0.01	<20.0
SPW-3	Water	Mar 1996	Ra-226	<0.08	-0.00±0.04;0.04	<1.0
SPW-3	Water	Mar 1996	Ra-228	<0.9	0.47±0.75;0.75	<1.0
SPW-4	Water	Apr 1996	Ra-226	<0.06	0.09±0.04;0.04	<1.0
SPMI-2218	Milk	Apr 1996	Cs-134	<4.8	2.52±2.62;2.64	<10.0
SPMI-2218	Milk	Apr 1996	Cs-137	<5.4	4.42±3.00;3.06	<10.0
SPW-2220	Water	Apr 1996	Co-60	<2.9	0.95±1.58;1.59	<10.0
SPW-2220	Water	Apr 1996	Cs-134	<2.7	1.47±1.64;1.65	<10.0
SPW-2220	Water	Apr 1996	Cs-137	<1.9	-1.28±1.72;1.73	<10.0
SPW-2222	Water	Apr 1996	Gr. Alpha	<0.2	-0.21±0.97;0.97	<1.0

Table A-3. In-house "blank" samples.

Lab Code	Sample Type	Sample Date	Analysis	Concentration pCi/L[a]. Teledyne Results (4.66 Sigma) LLD	Activity[b]	Acceptance Criteria (4.66 Sigma)
SPW-2222	Water	Apr 1996	Gr. Beta	<2.8	2.26±1.57;1.61	<3.2
SPW-2224	Water	Apr 1996	H-3	<151	-101.30±70.18;71.52	<200.0
SPW-2284	Water	Apr 1996	I-129	<1.4	0.22±0.84;0.84	<1.5
SPW-2286	Water	Apr 1996	Fe-55	<0.7	-0.07±0.43;0.43	<1000.0
SPW-2288	Water	Apr 1996	Tc-99	<4.2	0.55±2.29;2.29	<10.0
SPF-3421	Fish	May 1996	Co-60	<0.010	0.00±0.01;0.01	<10.0
SPF-3421	Fish	May 1996	Cs-134	<0.014	-0.00±0.01;0.01	<10.0
SPF-3421	Fish	May 1996	Cs-137	<0.015	0.01±0.01;0.01	<10.0
SPW-3440	Water	May 1996	I-131	<0.1	0.04±0.20;0.20	<0.5
SPMI-3442	Milk	May 1996	I-131	<0.1	-0.07±0.20;0.20	<0.5
SPW-6	Water	Jun 1996	Ra-228	<1.0	0.73±1.05;1.06	<1.0
SPMI-4055	Milk	Jun 1996	Co-60	<8.7	2.51±4.51;4.52	<10.0
SPMI-4055	Milk	Jun 1996	Cs-134	<6.1	1.87±3.37;3.38	<10.0
SPMI-4055	Milk	Jun 1996	Cs-137	<5.3	1.82±11.80;11.80	<10.0
SPMI-4055	Milk	Jun 1996	I-131	<0.3	0.21±0.24;0.24	<0.5
SPMI-4055	Milk	Jun 1996	Sr-89	<0.8	0.57±1.83;1.83	<5.0
SPMI-4055	Milk	Jun 1996	Sr-90	N/A	1.49±0.44;0.46	<1.0
Low level of Sr-90 concentration in milk (1-5 pCi/L) is not unusual.						
SPW-7	Water	Jul 1996	Ra-228	<0.8	-0.05±0.70;0.70	<1.0
SPAP-4751	Air Filter	Jul 1996	Co-60	<2.7	1.26±1.44;1.45	<10.0
SPAP-4751	Air Filter	Jul 1996	Cs-134	<4.8	1.50±1.80;1.80	<10.0
SPAP-4751	Air Filter	Jul 1996	Cs-137	<2.4	0.63±1.49;1.49	<10.0
SPW-4937	Water	Jul 1996	Co-60	<4.5	-0.25±3.27;3.27	<10.0
SPW-4937	Water	Jul 1996	Cs-134	<5.5	0.34±3.39;3.39	<10.0
SPW-4937	Water	Jul 1996	Cs-137	<5.7	-0.35±3.43;3.43	<10.0
SPMI-4939	Milk	Jul 1996	Co-60	<8.0	1.13±4.73;4.73	<10.0
SPMI-4939	Milk	Jul 1996	Cs-134	<7.2	1.80±5.18;5.19	<10.0
SPMI-4939	Milk	Jul 1996	Cs-137	<5.8	1.04±3.77;3.77	<10.0
SPW-4943	Water	Jul 1996	Fe-55	<0.6	0.18±0.35;0.35	<1000.0
SPF-4997	Fish	Jul 1996	Co-60	<0.006	0.00±0.00;0.00	<10.0
SPF-4997	Fish	Jul 1996	Cs-134	<0.006	-0.00±0.01;0.01	<10.0
SPF-4997	Fish	Jul 1996	Cs-137	<0.009	0.01±0.01;0.01	<10.0
SPAP-5670	Air Filter	Jul 1996	Gr. Beta	<0.4	0.80±0.32;0.33	<3.2
SPW-8	Water	Aug 1996	Ra-226	<0.04	0.16±0.03;0.03	<1.0
SPW-8	Water	Aug 1996	Ra-228	<1.0	0.44±0.79;0.79	<1.0
SPW-9	Water	Sep 1996	Ra-226	<0.05	0.01±0.03;0.03	<1.0

Table A-3. In-house "blank" samples.

Lab Code	Sample Type	Sample Date	Analysis	Concentration pCi/L[a]. Teledyne Results (4.66 Sigma) LLD	Activity[b]	Acceptance Criteria (4.66 Sigma)
SPW-7013	Water	Sep 1996	Sr-89	<1.8	-0.73±1.10;1.10	<5.0
SPW-7013	Water	Sep 1996	Sr-90	<0.5	-0.05±0.21;0.21	<1.0
SPW-10	Water	Oct 1996	Ra-228	<1.0	0.80±0.57;0.58	<1.0
SPMI-7382	Milk	Oct 1996	Cs-134	<3.1	-0.25±2.62;2.62	<10.0
SPMI-7382	Milk	Oct 1996	Cs-137	<4.8	0.15±2.68;2.68	<10.0
SPMI-7382	Milk	Oct 1996	I-131(g)	<3.7	-1.61±3.28;3.29	<20.0
SPMI-7383	Milk	Oct 1996	Cs-134	<5.7	0.28±3.68;3.68	<10.0
SPMI-7383	Milk	Oct 1996	Cs-137	<4.1	-1.83±3.63;3.64	<10.0
SPMI-7383	Milk	Oct 1996	I-131	<0.4	0.18±0.23;0.24	<0.5
SPMI-7383	Milk	Oct 1996	I-131(g)	<6.8	1.19±4.08;4.08	<20.0
SPMI-7443	Milk	Oct 1996	I-131	<0.4	-0.08±0.17;0.17	<0.5
SPCH-7475	Charcoal Canister	Oct 1996	I-131(g)	<2.8	-1.58±12.74;12.74	<9.6
SPAP-7477	Air Filter	Oct 1996	Cs-137	<2.2	0.00±0.00;0.00	<10.0
SPSO-7479	Soil	Oct 1996	Cs-134	<0.011	0.00±0.00;0.00	<10.0
SPSO-7479	Soil	Oct 1996	Cs-137	<0.007	0.00±0.00;0.00	<10.0
SPAP-7527	Air Filter	Oct 1996	Gr. Beta	<0.7	0.10±0.45;0.45	<3.2
SPF-7505	Fish	Oct 1996	Co-60	<0.016	-0.00±0.01;0.01	<10.0
SPF-7505	Fish	Oct 1996	Cs-134	<0.017	-0.01±0.04;0.04	<10.0
SPF-7505	Fish	Oct 1996	Cs-137	<0.016	-0.00±0.01;0.01	<10.0
SPW-8735	Water	Nov 1996	Co-60	<6.0	-0.14±0.10;0.10	<10.0
SPW-8735	Water	Nov 1996	Cs-134	<4.7	-0.53±7.69;7.69	<10.0
SPW-8735	Water	Nov 1996	Cs-137	<8.2	2.09±4.63;4.64	<10.0
SPW-8735	Water	Nov 1996	Gr. Alpha	<0.3	0.15±0.21;0.21	<1.0
SPW-8735	Water	Nov 1996	Gr. Beta	<0.8	-0.41±0.52;0.53	<3.2
SPW-8739	Water	Nov 1996	H-3	<158	104.99±82.93;84.15	<200.0

[a] Liquid sample results are reported in pCi/Liter, air filter sample results are in pCi/filter, charcoal sample results are in pCi/charcoal, and solid sample results are in pCi/kilogram.
[b] The activity reported is the net activity result.

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Jan, 1996	Gr. Beta	CF - 20, 21	A	7.1±0.2;0.8	6.9±0.1;0.7
Jan, 1996	K-40	CF - 20, 21	A	3.7±0.4;0.5	3.7±0.1;0.4
Jan, 1996	Sr-89	CF - 20, 21	A	-0.0±0.0;0.0	0.0±0.0;0.0
Jan, 1996	Sr-90	CF - 20, 21	A	0.0±0.0;0.0	0.0±0.0;0.0
Jan, 1996	Cs-137	MI - 47, 48	A	-1.7±4.1;4.1	2.8±3.4;3.4
Jan, 1996	I-131	MI - 47, 48	A	0.1±0.2;0.2	0.1±0.2;0.2
Jan, 1996	Co-60	LW - 103, 104	A	0.3±1.7;1.7	1.1±2.2;2.2
Jan, 1996	Cs-134	LW - 103, 104	A	0.4±1.5;1.5	1.0±2.4;2.4
Jan, 1996	Cs-137	LW - 103, 104	A	0.7±1.6;1.6	0.3±2.2;2.2
Jan, 1996	Gr. Beta	LW - 103, 104	A	2.2±0.5;0.6	2.2±0.6;0.7
Jan, 1996	I-131	LW - 103, 104	A	0.1±0.2;0.2	0.1±0.3;0.3
Jan, 1996	I-131(g)	LW - 103, 104	A	-3.9±6.3;6.3	1.4±12.0;12.0
Jan, 1996	K-40	LW - 103, 104	A	78.6±35.3;36.2	99.4±48.5;49.5
Jan, 1996	Gr. Beta	CW - 132, 133	A	1.7±1.3;1.3	-0.3±1.[illegible];1.1
Jan, 1996	Gr. Beta	CW - 132, 133	A	5.5±1.7;1.8	3.9±1.[illegible];1.6
Jan, 1996	Co-60	MI - 70, 71	A	1.2±4.3;4.3	1.7±4.1;4.1
Jan, 1996	Cs-137	MI - 70, 71	A	0.3±3.3;3.3	2.4±3.4;3.4
Jan, 1996	Co-60	MI - 154, 155	A	1.6±2.6;2.6	-0.5±3.3;3.3
Jan, 1996	Cs-134	MI - 154, 155	A	0.1±2.2;2.2	-2.3±2.6;2.6
Jan, 1996	Cs-137	MI - 154, 155	A	-0.7±2.0;2.0	0.7±2.9;2.9
Jan, 1996	I-131	MI - 154, 155	A	0.0±0.3;0.3	0.0±0.2;0.2
Jan, 1996	I-131(g)	MI - 154, 155	A	1.2±3.4;3.4	0.1±3.9;3.9
Jan, 1996	K-40	MI - 154, 155	A	1,521.1±89.3;225.3	1,628.4±122.0;252.8
Jan, 1996	Sr-89	MI - 154, 155	A	-0.5±0.8;0.8	-0.7±0.8;0.8
Jan, 1996	Sr-90	MI - 154, 155	A	0.8±0.3;0.3	1.0±0.3;0.3
Jan, 1996	I-131	WW - 180, 181	A	0.0±0.2;0.2	-0.1±0.2;0.2
Jan, 1996	I-131	MI - 298, 299	A	0.1±0.2;0.2	0.2±0.3;0.3
Jan, 1996	K-40	MI - 298, 299	A	1,579.0±177.0;278.3	1,551.7±168.0;269.7
Jan, 1996	Gr. Beta	CW - 355, 356	A	0.1±1.0;1.0	-0.3±0.9;0.9
Jan, 1996	Gr. Beta	CW - 355, 356	A	2.4±1.3;1.3	2.1±1.3;1.3
Jan, 1996	Co-60	SW - 436, 437	A	0.1±1.1;1.1	0.7±1.9;1.9
Jan, 1996	Cs-137	SW - 436, 437	A	0.1±1.2;1.2	1.6±1.9;1.9
Jan, 1996	H-3	WW - 500, 501	A	21,035.6±418.5;2,144.8	20,597.1±414.4;2,101.0
Jan, 1996	Gr. Beta	SWT - 554, 555	A	2.9±0.5;0.7	3.1±0.5;0.7
Jan, 1996	K-40	SW - 841, 842	A	65.0±28.3;29.0	118.9±57.7;58.9
Feb, 1996	Gr. Beta	SW - 479, 480	A	6.7±1.0;1.4	7.8±1.3;1.8
Feb, 1996	Co-60	MI - 521, 522	A	-1.1±2.9;2.9	0.1±5.0;5.0
Feb, 1996	Cs-137	MI - 521, 522	A	-0.8±2.8;2.8	-0.4±3.4;3.4

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Code[b]	Accepted[a] Rejected	Concentration in pCi/L[a] First Result	Concentration in pCi/L[a] Second Result
Feb, 1996	I-131	MI - 521, 522	A	0.1±0.3;0.3	0.2±0.3;0.3
Feb, 1996	Co-60	MI - 580, 581	A	-0.8±2.7;2.7	1.7±1.5;1.5
Feb, 1996	Cs-137	MI - 580, 581	A	0.6±2.3;2.3	0.4±1.3;1.3
Feb, 1996	Gr. Alpha	LW - 709, 710	A	0.1±0.4;0.4	0.5±0.4;0.4
Feb, 1996	Gr. Beta	LW - 709, 710	A	1.7±0.4;0.5	2.0±0.4;0.5
Feb, 1996	H-3	LW - 709, 710	A	37.4±74.3;74.5	64.4±76.4;77.3
Feb, 1996	I-131	MI - 603, 604	A	-0.9±0.4;0.4	-0.2±0.3;0.3
Feb, 1996	K-40	MI - 603, 604	A	1,382.9±115.0;220.4	1,335.3±175.0;252.2
Feb, 1996	I-131	WW - 648, 649	A	-0.1±0.3;0.3	-0.1±0.3;0.3
Feb, 1996	I-131	MI - 674, 675	A	-0.8±0.4;0.4	-0.1±0.4;0.4
Feb, 1996	K-40	MI - 674, 675	A	1,390.4±174.0;257.0	1,493.6±166.0;262.3
Feb, 1996	I-131	WW - 865, 866	A	0.1±0.2;0.2	0.1±0.2;0.2
Feb, 1996	Co-60	PW - 932, 933	A	0.5±1.5;1.5	0.4±2.4;2.4
Feb, 1996	Cs-137	PW - 932, 933	A	0.1±1.7;1.7	0.7±3.0;3.0
Feb, 1996	Co-60	SW - 911, 912	A	-1.8±3.3;3.3	1.0±1.5;1.5
Feb, 1996	Cs-137	SW - 911, 912	A	-0.3±3.6;3.6	-0.9±1.8;1.8
Feb, 1996	Gr. Beta	SWT - 953, 954	A	2.5±0.5;0.7	2.2±0.5;0.6
Feb, 1996	Gr. Beta	LW - 1037, 1038	A	2.8±0.5;0.7	3.1±0.5;0.7
Feb, 1996	H-3	LW - 1037, 1038	A	36.5±94.7;94.9	116.8±98.0;99.3
Mar, 1996	Gr. Beta	CW - 977, 978	A	0.7±1.2;1.2	-0.1±1.0;1.0
Mar, 1996	Gr. Beta	CW - 977, 978	A	3.9±1.6;1.6	3.1±1.5;1.5
Mar, 1996	H-3	SW - 1467, 1468	A	130.3±81.1;83.1	130.3±81.1;83.1
Mar, 1996	Sr-89	SW - 1467, 1468	A	-0.1±2.0;2.0	-1.1±1.9;1.9
Mar, 1996	Sr-90	SW - 1467, 1468	A	0.6±0.3;0.3	0.9±0.3;0.4
Mar, 1996	I-131	MI - 1058, 1059	A	-0.3±0.4;0.4	-0.0±0.4;0.4
Mar, 1996	K-40	MI - 1058, 1059	A	1,500.0±157.0;257.4	1,549.0±156.0;262.1
Mar, 1996	Sr-89	MI - 1058, 1059	A	0.6±0.9;0.9	-1.5±1.3;1.3
Mar, 1996	Sr-90	MI - 1058, 1059	A	1.5±0.4;0.4	2.4±0.5;0.6
Mar, 1996	I-131	MI - 1152, 1153	A	0.4±0.6;0.6	0.2±0.6;0.6
Mar, 1996	K-40	MI - 1152, 1153	A	1,524.3±157.0;260.0	1,358.8±172.0;252.5
Mar, 1996	H-3	P - 1175, 1176	A	160.8±82.5;85.3	151.8±82.1;84.6
Mar, 1996	Gr. Beta	LW - 1213, 1214	A	2.3±0.6;0.7	2.7±0.6;0.7
Mar, 1996	H-3	LW - 1213, 1214	A	92.4±97.1;98.0	29.5±94.6;94.7
Mar, 1996	H-3	SW - 1282, 1283	A	82.4±96.2;96.9	36.9±94.4;94.5
Mar, 1996	Co-60	LW - 1309, 1310	A	3.0±4.7;4.7	4.1±2.5;2.6
Mar, 1996	Cs-134	LW - 1309, 1310	A	-0.2±3.6;3.6	2.2±4.4;4.4
Mar, 1996	Cs-137	LW - 1309, 1310	A	-4.8±3.9;4.0	-1.1±4.2;4.2
Mar, 1996	Gr. Beta	LW - 1309, 1310	A	2.6±0.5;0.7	2.9±0.5;0.7

Table A-4. In-house "duplicate" program

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Concentration in pCi/L[a] Second Result
Mar, 1996	I-131	LW - 1309, 1310	A	0.4±0.5;0.5	0.1±0.5;0.5
Mar, 1996	I-131(g)	LW - 1309, 1310	A	1.0±5.5;5.5	-0.7±5.3;5.3
Mar, 1996	K-40	LW - 1309, 1310	A	104.7±51.7;52.8	85.6±56.5;57.1
Mar, 1996	H-3	LW - 1362, 1363	A	162.9±99.9;102.3	108.0±97.7;98.8
Mar, 1996	Sr-89	LW - 1362, 1363	A	-1.0±0.9;0.9	0.3±1.4;1.4
Mar, 1996	Sr-90	LW - 1362, 1363	A	0.7±0.3;0.3	0.0±0.5;0.5
Mar, 1996	Co-60	F - 1446, 1447	A	0.0±0.0;0.0	-0.0±0.0;0.0
Mar, 1996	Cs-134	F - 1446, 1447	A	0.0±0.0;0.0	0.0±0.0;0.0
Mar, 1996	Cs-137	F - 1446, 1447	A	0.0±0.0;0.0	0.0±0.0;0.0
Mar, 1996	Gr. Beta	F - 1446, 1447	A	2.0±0.1;0.2	1.8±0.1;0.2
Mar, 1996	I-131(g)	F - 1446, 1447	A	-0.1±0.4;0.4	-0.7±0.5;0.6
Mar, 1996	K-40	F - 1446, 1447	A	2.0±0.3;0.4	2.0±0.4;0.4
Mar, 1996	H-3	SW - 1537, 1538	A	141.6±96.7;97.8	175.2±98.1;99.6
Mar, 1996	Co-60	LW - 1612, 1613	A	3.5±3.1;3.1	0.7±1.6;1.6
Mar, 1996	Cs-134	LW - 1612, 1613	A	1.4±2.7;2.7	1.6±2.0;2.0
Mar, 1996	Cs-137	LW - 1612, 1613	A	4.7±3.0;3.1	1.3±2.4;2.4
Mar, 1996	Gr. Beta	LW - 1612, 1613	A	2.6±0.5;0.7	3.0±0.5;0.7
Mar, 1996	I-131	LW - 1612, 1613	A	0.3±0.2;0.2	0.1±0.1;0.1
Mar, 1996	I-131(g)	LW - 1612, 1613	A	0.3±3.7;3.7	0.7±2.9;2.9
Mar, 1996	K-40	LW - 1612, 1613	A	61.2±33.1;33.7	98.3±31.4;32.9
Mar, 1996	Gr. Beta	CW - 1709, 1710	A	4.5±1.7;1.8	3.6±1.7;1.7
Mar, 1996	Gr. Beta	CW - 1709, 1710	A	0.4±1.5;1.5	0.3±1.5;1.5
Mar, 1996	Sr-89	AP - 2140, 2141	A	0.0±0.0;0.0	-0.0±0.0;0.0
Mar, 1996	Sr-90	AP - 2140, 2141	A	0.0±0.0;0.0	0.0±0.0;0.0
Mar, 1996	Co-60	WW - 1659, 1660	A	0.2±3.2;3.2	2.2±2.5;2.5
Mar, 1996	Cs-137	WW - 1659, 1660	A	-1.9±3.3;3.3	2.3±2.4;2.5
Mar, 1996	H-3	WW - 1659, 1660	A	995.8±117.5;154.0	1,115.3±121.1;164.6
Mar, 1996	H-3	PW - 1757, 1758	A	88.6±119.7;120.3	68.9±119.1;119.4
Mar, 1996	Co-60	AP - 2547, 2548	A	0.0±0.0;0.0	-0.0±0.0;0.0
Mar, 1996	Cs-137	AP - 2547, 2548	A	-0.0±0.0;0.0	0.0±0.0;0.0
Mar, 1996	Co-60	AP - 2568, 2569	A	0.0±0.0;0.0	0.0±0.0;0.0
Mar, 1996	Cs-137	AP - 2568, 2569	A	-0.0±0.0;0.0	-0.0±0.0;0.0
Apr, 1996	I-131	MI - 1778, 1779	A	0.2±0.2;0.2	0.1±0.2;0.2
Apr, 1996	K-40	MI - 1778, 1779	A	1,390.4±98.1;213.0	1,426.0±144.0;241.6
Apr, 1996	Sr-89	MI - 1778, 1779	A	-3.1±2.1;2.2	-1.4±2.0;2.0
Apr, 1996	Sr-90	MI - 1778, 1779	A	2.2±0.5;0.6	2.0±0.4;0.5
Apr, 1996	Co-60	MI - 1799, 1800	A	0.2±2.7;2.7	1.9±4.6;4.6
Apr, 1996	Cs-137	MI - 1799, 1800	A	2.1±2.4;2.4	1.8±3.2;3.2

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Apr, 1996	I-131	MI - 1799, 1800	A	0.1±0.2;0.2	0.1±0.2;0.2
Apr, 1996	I-131	MI - 1843, 1844	A	0.0±0.2;0.2	0.1±0.2;0.2
Apr, 1996	K-40	MI - 1843, 1844	A	1,429.1±93.2;215.5	1,630.3±143.0;263.8
Apr, 1996	Co-60	LW - 1913, 1914	A	2.2±0.8;0.9	1.2±3.2;3.2
Apr, 1996	Cs-134	LW - 1913, 1914	A	0.4±0.8;0.8	-0.8±3.1;3.1
Apr, 1996	Cs-137	LW - 1913, 1914	A	0.5±0.9;0.9	0.5±3.1;3.1
Apr, 1996	Gr. Beta	LW - 1913, 1914	A	3.0±0.5;0.7	2.7±0.5;0.7
Apr, 1996	I-131	LW - 1913, 1914	A	0.1±0.2;0.2	0.1±0.3;0.3
Apr, 1996	I-131(g)	LW - 1913, 1914	A	-0.2±1.7;1.7	-1.7±5.4;5.4
Apr, 1996	K-40	LW - 1913, 1914	A	39.4±17.4;17.8	86.9±43.4;44.3
Apr, 1996	Cs-137	SO - 1946, 1947	A	0.2±0.0;0.0	0.2±0.0;0.0
Apr, 1996	K-40	SO - 1946, 1947	A	10.5±0.5;1.2	10.5±0.4;1.1
Apr, 1996	Gr. Beta	CW - 1991, 1992	A	3.9±1.7;1.8	4.6±1.7;1.9
Apr, 1996	Gr. Beta	CW - 1991, 1992	A	-0.3±1.4;1.4	0.3±1.5;1.5
Apr, 1996	Co-60	WW - 1890, 1891	A	1.6±1.8;1.8	0.2±2.2;2.2
Apr, 1996	Cs-137	WW - 1890, 1891	A	-0.6±1.7;1.7	0.1±2.5;2.5
Apr, 1996	H-3	WW - 1890, 1891	A	538.2±97.1;121.6	601.3±99.4;128.7
Apr, 1996	Gr. Beta	WW - 2063, 2064	A	6.3±0.8;1.2	6.3±0.8;1.3
Apr, 1996	H-3	WW - 2063, 2064	A	69.5±78.1;78.7	26.8±76.2;76.3
Apr, 1996	I-131	MI - 2089, 2090	A	0.2±0.3;0.3	0.2±0.2;0.2
Apr, 1996	K-40	MI - 2089, 2090	A	1,338.3±180.0;256.0	1,456.5±160.0;254.6
Apr, 1996	Co-60	LW - 2303, 2304	A	1.9±3.0;3.0	1.5±3.0;3.0
Apr, 1996	Cs-137	LW - 2303, 2304	A	0.8±2.7;2.7	1.0±3.0;3.0
Apr, 1996	Gr. Beta	LW - 2303, 2304	A	3.7±1.3;1.4	4.1±1.3;1.4
Apr, 1996	I-131	MI - 2418, 2419	A	0.2±0.4;0.4	0.2±0.3;0.3
Apr, 1996	K-40	MI - 2418, 2419	A	1,418.9±120.0;227.2	1,477.3±182.0;271.1
Apr, 1996	Gr. Alpha	SS - 2442, 2443	A	3.6±3.9;3.9	0.3±2.7;2.7
Apr, 1996	Gr. Beta	SS - 2442, 2443	A	5.5±3.1;3.1	8.6±3.3;3.4
Apr, 1996	K-40	SS - 2442, 2443	A	7.5±0.2;0.8	7.8±0.3;0.8
Apr, 1996	Sr-90	SS - 2442, 2443	A	0.0±0.0;0.0	0.0±0.0;0.0
Apr, 1996	Cs-137	SL - 2589, 2590	A	0.1±0.0;0.0	0.1±0.0;0.0
Apr, 1996	K-40	SL - 2589, 2590	A	4.1±0.5;0.6	3.3±0.5;0.6
Apr, 1996	H-3	WW - 2700, 2701	A	-13.9±73.4;73.4	-31.2±72.6;72.7
Apr, 1996	Co-60	SW - 2675, 2676	A	-1.9±1.9;1.9	-1.2±2.9;2.9
Apr, 1996	Cs-137	SW - 2675, 2676	A	-1.0±2.2;2.2	3.0±2.6;2.6
Apr, 1996	K-40	SW - 2503, 2504	A	95.9±47.8;48.8	71.0±36.8;37.5
Apr, 1996	Co-60	LW - 2777, 2778	A	3.1±3.7;3.7	1.9±2.8;2.8
Apr, 1996	Cs-134	LW - 2777, 2778	A	-1.1±2.5;2.5	-1.5±2.5;2.5

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/l.[a] First Result	Second Result
Apr, 1996	Cs-137	LW - 2777, 2778	A	0.4±3.3;3.3	2.5±3.1;3.2
Apr, 1996	Gr. Beta	LW - 2777, 2778	A	2.7±0.6;0.8	2.2±0.6;0.7
Apr, 1996	I-131	LW - 2777, 2778	A	0.2±0.3;0.3	-0.1±0.4;0.4
Apr, 1996	I-131(g)	LW - 2777, 2778	A	2.1±10.3;10.3	-1.8±11.5;11.5
Apr, 1996	K-40	LW - 2777, 2778	A	91.1±43.2;44.1	59.7±37.0;37.5
May, 1996	Co-60	F - 2612, 2613	A	0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Cs-137	F - 2612, 2613	A	0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Gr. Beta	BS - 2654, 2655	A	4.7±1.8;1.8	6.0±1.9;2.0
May, 1996	K-40	BS - 2654, 2655	A	6.4±0.4;0.8	6.7±0.4;0.8
May, 1996	Sr-89	BS - 2654, 2655	A	0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Sr-90	BS - 2654, 2655	A	0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Co-60	F - 2633, 2634	A	0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Cs-137	F - 2633, 2634	A	0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Co-60	MI - 2742, 2743	A	-1.6±3.2;3.2	0.2±2.7;2.7
May, 1996	Cs-137	MI - 2742, 2743	A	0.7±2.6;2.6	-0.5±2.3;2.3
May, 1996	I-131	MI - 2742, 2743	A	-0.0±0.2;0.2	0.2±0.3;0.3
May, 1996	Co-60	MI - 2841, 2842	A	2.1±3.3;3.4	0.5±3.6;3.6
May, 1996	Cs-137	MI - 2841, 2842	A	0.4±2.8;2.8	3.3±3.4;3.4
May, 1996	I-131	MI - 2841, 2842	A	0.4±0.3;0.3	-0.0±0.2;0.2
May, 1996	Gr. Beta	WW - 2866, 2867	A	6.9±1.3;1.7	6.9±1.3;1.7
May, 1996	H-3	WW - 2866, 2867	A	178.3±87.5;90.8	133.8±85.6;87.5
May, 1996	Co-60	LW - 2981, 2982	A	1.9±2.5;2.5	0.8±2.0;2.0
May, 1996	Cs-134	LW - 2981, 2982	A	0.8±2.4;2.4	0.2±2.0;2.0
May, 1996	Cs-137	LW - 2981, 2982	A	2.2±2.7;2.7	-0.8±2.2;2.2
May, 1996	Gr. Beta	LW - 2981, 2982	A	3.7±0.6;0.8	2.6±0.6;0.7
May, 1996	I-131	LW - 2981, 2982	A	-0.0±0.2;0.2	0.1±0.2;0.2
May, 1996	I-131(g)	LW - 2981, 2982	A	1.9±8.9;8.9	-3.0±7.3;7.3
May, 1996	K-40	LW - 2981, 2982	A	121.0±38.6;40.5	150.7±23.3;27.7
May, 1996	Co-60	F - 2887, 2888	A	0.0±0.0;0.0	-0.0±0.0;0.0
May, 1996	Cs-137	F - 2887, 2888	A	-0.0±0.0;0.0	0.0±0.0;0.0
May, 1996	Gr. Beta	WW - 3032, 3033	A	3.6±0.9;1.0	2.5±0.5;0.7
May, 1996	H-3	WW - 3032, 3033	A	32.0±83.9;84.0	133.6±88.2;90.1
May, 1996	Cs-137	SS - 2931, 2932	A	0.2±0.1;0.1	0.1±0.0;0.0
May, 1996	K-40	SS - 2931, 2932	A	21.4±1.8;2.8	18.9±1.0;2.1
May, 1996	Gr. Beta	CW - 2955, 2956	A	2.6±1.6;1.6	3.6±1.6;1.7
May, 1996	Gr. Beta	CW - 2955, 2956	A	-0.3±1.1;1.1	-0.4±1.1;1.1
May, 1996	Sr-89	MI - 3053, 3054	A	0.6±1.5;1.5	-0.6±2.0;2.0
May, 1996	Sr-90	MI - 3053, 3054	A	1.4±0.4;0.4	1.9±0.5;0.6

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Concentration in pCi/L[a] Second Result
May, 1996	Co-60	MI - 3099, 3100	A	0.3±2.7;2.7	0.3±4.3;4.3
May, 1996	Cs-137	MI - 3099, 3100	A	-0.6±2.5;2.5	-0.8±3.6;3.6
May, 1996	I-131	MI - 3099, 3100	A	0.0±0.3;0.3	0.2±0.2;0.2
May, 1996	K-40	F - 3251, 3252	A	2.6±0.4;0.5	2.7±0.3;0.4
May, 1996	Cs-137	BS - 3230, 3231	A	0.6±0.0;0.1	0.6±0.0;0.1
May, 1996	K-40	BS - 3230, 3231	A	22.4±0.8;2.4	21.8±0.8;2.3
May, 1996	I-131	MI - 3344, 3345	A	0.2±0.2;0.2	0.2±0.3;0.3
May, 1996	K-40	MI - 3344, 3345	A	1,611.2±190.0;290.0	1,409.5±157.0;247.8
May, 1996	Gr. Alpha	VE - 3381, 3382	A	0.4±0.2;0.2	0.4±0.2;0.2
May, 1996	Gr. Beta	VE - 3381, 3382	A	4.3±0.2;0.5	4.0±0.2;0.5
May, 1996	K-40	VE - 3381, 3382	A	4.6±0.3;0.5	4.1±0.3;0.5
May, 1996	Gr. Beta	SWU - 3404, 3405	A	2.5±0.5;0.7	3.1±0.6;0.7
May, 1996	H-3	SWU - 3404, 3405	A	197.6±88.5;92.5	188.4±88.1;91.7
May, 1996	Co-60	SW - 3677, 3678	A	0.5±2.4;2.4	0.2±1.8;1.8
May, 1996	Cs-137	SW - 3677, 3678	A	1.2±3.4;3.4	-0.7±2.2;2.2
May, 1996	Gr. Beta	SW - 3677, 3678	A	5.4±1.3;1.5	6.0±1.3;1.6
May, 1996	Gr. Beta	DW - 3551, 3552	A	2.8±0.5;0.7	1.9±0.5;0.6
May, 1996	I-131	DW - 3551, 3552	A	0.3±0.4;0.4	0.0±0.4;0.4
May, 1996	K-40	DW - 3551, 3552	A	113.1±47.8;49.1	131.5±74.9;76.0
May, 1996	H-3	WW - 3506, 3507	A	3.1±81.2;81.2	-32.2±79.6;79.7
May, 1996	Co-60	PW - 3700, 3701	A	0.9±2.2;2.2	-0.4±3.1;3.1
May, 1996	Cs-137	PW - 3700, 3701	A	-1.7±2.5;2.5	0.3±3.2;3.2
Jun, 1996	Co-60	MI - 3447, 3448	A	-0.6±4.9;4.9	-1.3±4.8;4.8
Jun, 1996	Cs-137	MI - 3447, 3448	A	0.8±3.6;3.6	2.6±3.9;3.9
Jun, 1996	I-131	MI - 3447, 3448	A	-0.0±0.1;0.1	-0.1±0.3;0.3
Jun, 1996	Gr. Beta	G - 3530, 3531	A	4.8±0.1;0.5	4.9±0.1;0.5
Jun, 1996	K-40	G - 3530, 3531	A	4.9±0.5;0.7	4.5±0.4;0.6
Jun, 1996	Sr-89	G - 3530, 3531	A	0.0±0.0;0.0	-0.0±0.0;0.0
Jun, 1996	Sr-90	G - 3530, 3531	A	0.0±0.0;0.0	0.0±0.0;0.0
Jun, 1996	Gr. Beta	WW - 3597, 3598	A	2.7±0.7;0.8	1.7±0.7;0.7
Jun, 1996	H-3	WW - 3597, 3598	A	114.9±80.8;82.3	107.9±80.5;81.8
Jun, 1996	K-40	G - 3621, 3622	A	5.5±0.2;0.6	5.7±0.2;0.6
Jun, 1996	I-131	MI - 3642, 3643	A	-0.2±0.3;0.3	0.2±0.3;0.3
Jun, 1996	Cs-137	F - 4452, 4453	A	0.0±0.0;0.0	0.0±0.0;0.0
Jun, 1996	Cs-137	F - 4452, 4453	A	0.0±0.0;0.0	0.0±0.0;0.0
Jun, 1996	Gr. Beta	F - 4452, 4453	A	2.1±0.1;0.2	2.1±0.1;0.2
Jun, 1996	Gr. Beta	F - 4452, 4453	A	2.1±0.1;0.2	2.1±0.1;0.2
Jun, 1996	K-40	F - 4452, 4453	A	1.9±0.1;0.2	2.0±0.1;0.2

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Jun, 1996	K-40	P - 4452, 4453	A	1.9±0.1;0.2	2.0±0.1;0.2
Jun, 1996	I-131	MI - 3830, 3831	A	0.0±0.5;0.5	0.2±0.5;0.5
Jun, 1996	K-40	MI - 3830, 3831	A	1,544.7±111.0;237.6	1,447.1±159.0;253.0
Jun, 1996	Co-60	MI - 3773, 3774	A	1.3±3.0;3.0	2.5±3.2;3.2
Jun, 1996	Cs-137	MI - 3773, 3774	A	3.8±2.6;2.7	-0.3±2.6;2.6
Jun, 1996	I-131	MI - 3773, 3774	A	0.2±0.3;0.3	-0.1±0.5;0.5
Jun, 1996	Sr-89	MI - 3874, 3875	A	-2.1±1.9;1.9	-1.3±1.9;1.9
Jun, 1996	Sr-90	MI - 3874, 3875	A	2.3±0.6;0.6	2.4±0.6;0.6
Jun, 1996	K-40	G - 3918, 3919	A	6.7±0.2;0.7	7.1±0.3;0.8
Jun, 1996	K-40	G - 4045, 4046	A	4.7±0.5;0.7	5.1±0.3;0.6
Jun, 1996	Gr. Beta	SWU - 4092, 4093	A	2.4±0.7;0.8	1.9±0.6;0.7
Jun, 1996	H-3	SWU - 4092, 4093	A	208.0±84.8;89.4	224.0±85.4;90.7
Jun, 1996	I-131	MI - 4071, 4072	A	-0.1±0.6;0.6	-0.1±0.5;0.5
Jun, 1996	K-40	MI - 4071, 4072	A	1,229.3±142.0;219.4	1,512.1±143.0;250.5
Jun, 1996	Sr-89	MI - 4071, 4072	A	0.3±1.0;1.0	-0.4±1.2;1.2
Jun, 1996	Sr-90	MI - 4071, 4072	A	1.0±0.3;0.3	1.3±0.4;0.4
Jun, 1996	I-131	WW - 4113, 4114	A	0.1±0.5;0.5	0.3±0.5;0.5
Jun, 1996	H-3	SW - 4162, 4163	A	13.4±75.4;75.4	6.2±75.0;75.1
Jun, 1996	H-3	PW - 4215, 4216	A	58.4±80.8;81.2	104.3±79.1;80.4
Jun, 1996	H-3	LW - 4259, 4260	A	195.8±86.1;90.2	215.3±86.9;91.7
Jun, 1996	Co-60	PW - 4549, 4550	A	-0.5±1.4;1.4	-0.4±1.5;1.5
Jun, 1996	Cs-137	PW - 4549, 4550	A	-1.1±1.7;1.7	-0.7±2.0;2.0
Jun, 1996	Co-60	SW - 4406, 4407	A	-0.9±2.0;2.0	-0.3±2.6;2.6
Jun, 1996	Cs-137	SW - 4406, 4407	A	-0.4±2.4;2.4	2.6±2.9;3.0
Jul, 1996	Gr. Beta	E - 4284, 4285	A	1.0±0.1;0.1	1.1±0.1;0.1
Jul, 1996	K-40	E - 4284, 4285	A	1.1±0.2;0.2	1.2±0.1;0.2
Jul, 1996	Sr-89	E - 4284, 4285	A	0.0±0.0;0.0	0.0±0.0;0.0
Jul, 1996	Sr-90	E - 4284, 4285	A	-0.0±0.0;0.0	0.0±0.0;0.0
Jul, 1996	Gr. Beta	WW - 4305, 4306	A	1.2±0.3;0.4	1.2±0.3;0.4
Jul, 1996	Co-60	MI - 4326, 4327	A	-0.2±3.0;3.0	-1.1±3.4;3.4
Jul, 1996	Cs-137	MI - 4326, 4327	A	-0.1±2.6;2.6	2.0±3.0;3.0
Jul, 1996	H-3	P - 4431, 4432	A	24.8±71.9;72.0	111.0±75.7;77.2
Jul, 1996	Sr-89	AP - 4595, 4596	A	0.0±0.0;0.0	-0.0±0.0;0.0
Jul, 1996	Sr-90	AP - 4595, 4596	A	0.0±0.0;0.0	0.0±0.0;0.0
Jul, 1996	Co-60	WW - 4375, 4376	A	1.3±2.1;2.1	1.2±2.4;2.4
Jul, 1996	Cs-137	WW - 4375, 4376	A	1.1±2.3;2.3	1.0±2.9;2.9
Jul, 1996	H-3	WW - 4375, 4376	A	-30.8±76.9;77.0	-25.4±77.2;77.2
Jul, 1996	I-131	MI - 4503, 4504	A	-0.0±0.3;0.3	0.2±0.3;0.3

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Code[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Jul, 1996	K-40	MI - 4503, 4504	A	1,287.1±161.0;237.8	1,188.3±136.0;211.2
Jul, 1996	Sr-89	MI - 4503, 4504	A	-1.5±1.0;1.0	-1.8±1.2;1.2
Jul, 1996	Sr-90	MI - 4503, 4504	A	1.6±0.5;0.5	2.5±0.5;0.6
Jul, 1996	Co-60	MI - 4527, 4528	A	2.4±2.5;2.6	-1.2±2.6;2.6
Jul, 1996	Cs-134	MI - 4527, 4528	A	0.8±1.9;1.9	1.9±2.6;2.6
Jul, 1996	Cs-137	MI - 4527, 4528	A	-0.7±2.0;2.0	0.1±2.3;2.3
Jul, 1996	I-131	MI - 4527, 4528	A	0.2±0.5;0.5	0.1±0.5;0.5
Jul, 1996	I-131(g)	MI - 4527, 4528	A	-0.1±2.8;2.8	0.1±3.6;3.6
Jul, 1996	K-40	MI - 4527, 4528	A	1,419.1±91.3;213.5	1,408.6±107.0;219.4
Jul, 1996	Sr-89	MI - 4527, 4528	A	-0.4±1.0;1.0	-1.5±1.1;1.2
Jul, 1996	Sr-90	MI - 4527, 4528	A	1.1±0.2;0.3	1.3±0.3;0.3
Jul, 1996	H-3	WW - 4684, 4685	A	-30.7±76.8;76.9	-13.0±77.6;77.7
Jul, 1996	Gr. Beta	WW - 4808, 4809	A	1.0±1.3;1.3	0.9±1.2;1.3
Jul, 1996	H-3	WW - 4808, 4809	A	-15.0±82.4;82.4	-30.4±72.8;72.9
Jul, 1996	K-40	G - 4762, 4763	A	7.0±0.3;0.8	7.3±0.2;0.8
Jul, 1996	Co-60	LW - 4832, 4833	A	-1.2±1.7;1.7	1.2±1.9;1.9
Jul, 1996	Cs-137	LW - 4832, 4833	A	1.0±1.6;1.6	1.7±2.2;2.3
Jul, 1996	Gr. Beta	LW - 4832, 4833	A	3.5±0.7;0.9	3.4±0.7;0.9
Jul, 1996	Gr. Beta	LW - 4832, 4833	A	3.5±0.7;0.9	3.4±0.7;0.9
Jul, 1996	Gr. Beta	LW - 5014, 5015	A	2.0±0.6;0.7	2.0±0.6;0.7
Jul, 1996	Cs-137	F - 5515, 5516	A	0.1±0.0;0.0	0.1±0.0;0.0
Jul, 1996	Gr. Beta	F - 5515, 5516	A	2.5±0.1;0.3	2.5±0.1;0.3
Jul, 1996	K-40	F - 5515, 5516	A	2.4±0.3;0.4	2.7±0.4;0.4
Jul, 1996	Gr. Beta	CW - 4956, 4957	A	2.2±1.5;1.5	4.0±1.6;1.7
Jul, 1996	Gr. Beta	CW - 4956, 4957	A	0.6±1.2;1.2	0.3±0.9;0.9
Jul, 1996	Co-60	SW - 5248, 5249	A	-1.0±1.9;1.9	0.2±1.9;1.9
Jul, 1996	Cs-137	SW - 5248, 5249	A	0.3±2.3;2.3	-0.6±2.4;2.4
Jul, 1996	H-3	WW - 5215, 5216	A	183.4±91.0;94.3	317.9±96.0;105.3
Jul, 1996	Co-60	MI - 5081, 5082	A	1.2±3.1;3.1	-1.7±4.2;4.2
Jul, 1996	Cs-137	MI - 5081, 5082	A	0.5±2.6;2.6	-2.9±3.3;3.4
Jul, 1996	I-131	MI - 5081, 5082	A	0.2±0.6;0.6	0.5±0.7;0.7
Jul, 1996	I-131	MI - 5081, 5082	A	0.2±0.6;0.6	0.4±0.7;0.7
Jul, 1996	Gr. Beta	SWU - 5125, 5126	A	4.1±2.1;2.2	5.5±2.3;2.5
Jul, 1996	H-3	SWU - 5125, 5126	A	176.4±90.7;93.8	125.7±88.7;90.4
Jul, 1996	Gr. Beta	VE - 5146, 5147	A	3.1±0.1;0.3	3.1±0.1;0.3
Jul, 1996	K-40	VE - 5146, 5147	A	3.4±0.1;0.4	3.5±0.1;0.4
Jul, 1996	Gr. Beta	DW - 5269, 5270	A	6.5±1.4;1.7	6.0±1.3;1.6
Jul, 1996	I-131	DW - 5269, 5270	A	0.2±0.4;0.4	0.0±0.3;0.3

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Aug, 1996	I-131	MI - 5168, 5169	A	-0.0±0.4;0.4	-0.6±0.5;0.5
Aug, 1996	K-40	MI - 5168, 5169	A	1,585.8±123.0;248.3	1,534.4±162.0;264
Aug, 1996	I-131	MI - 5289, 5290	A	-0.1±0.5;0.5	-0.3±0.6;0.6
Aug, 1996	Co-60	MI - 5190, 5191	A	-1.6±2.8;2.8	-0.2±4.0;4.0
Aug, 1996	Cs-137	MI - 5190, 5191	A	0.2±3.1;3.1	0.6±3.4;3.4
Aug, 1996	I-131	MI - 5190, 5191	A	0.2±0.5;0.5	0.4±0.5;0.5
Aug, 1996	Co-60	SL - 5424, 5425	A	0.0±0.0;0.0	0.0±0.0;0.0
Aug, 1996	Cs-134	SL - 5424, 5425	A	0.0±0.0;0.0	0.0±0.0;0.0
Aug, 1996	Cs-137	SL - 5424, 5425	A	0.0±0.0;0.0	0.0±0.0;0.0
Aug, 1996	I-131(g)	SL - 5424, 5425	A	0.0±0.0;0.0	-0.0±0.0;0.0
Aug, 1996	K-40	SL - 5424, 5425	A	1.6±0.3;0.3	1.6±0.2;0.3
Aug, 1996	Co-60	MI - 5386, 5387	A	0.8±3.2;3.2	-3.4±4.8;4.9
Aug, 1996	Cs-137	MI - 5386, 5387	A	1.1±2.6;2.6	1.8±3.5;3.5
Aug, 1996	I-131	MI - 5386, 5387	A	0.0±0.2;0.2	-0.0±0.2;0.2
Aug, 1996	I-131	MI - 5386, 5387	A	0.0±0.2;0.2	-0.0±0.3;0.3
Aug, 1996	Gr. Beta	SWU - 5905, 5906	A	1.5±0.7;0.7	2.4±0.5;0.6
Aug, 1996	H-3	SWU - 5905, 5906	A	257.2±84.3;91.3	306.6±86.3;95.8
Aug, 1996	I-131	MI - 5582, 5583	A	0.2±0.6;0.6	-0.0±0.6;0.6
Aug, 1996	K-40	MI - 5582, 5583	A	1,473.6±180.0;269.4	1,459.0±152.0;250.(
Aug, 1996	Co-60	LW - 5606, 5607	A	0.7±1.8;1.8	-0.8±1.5;1.5
Aug, 1996	Cs-137	LW - 5606, 5607	A	0.5±1.9;1.9	-0.9±2.6;2.6
Aug, 1996	Gr. Beta	LW - 5606, 5607	A	5.4±1.3;1.5	5.3±1.3;1.5
Aug, 1996	Cs-137	SL - 5667, 5668	A	0.0±0.0;0.0	0.0±0.0;0.0
Aug, 1996	K-40	SL - 5667, 5668	A	2.4±0.3;0.4	2.7±0.3;0.4
Aug, 1996	Gr. Beta	CW - 5759, 5760	A	3.7±1.5;1.6	4.6±1.5;1.7
Aug, 1996	Gr. Beta	CW - 5759, 5760	A	0.7±1.1;1.1	0.7±1.1;1.1
Aug, 1996	Co-60	MI - 5817, 5818	A	-4.3±4.6;4.6	3.7±4.8;4.8
Aug, 1996	Cs-137	MI - 5817, 5818	A	-0.7±4.2;4.2	1.4±3.6;3.6
Aug, 1996	I-131	MI - 5817, 5818	A	0.0±0.1;0.1	0.1±0.1;0.1
Aug, 1996	Gr. Beta	SWT - 5884, 5885	A	2.7±0.8;0.9	2.9±0.7;0.8
Aug, 1996	Gr. Beta	SW - 5925, 5926	A	3.6±0.6;0.8	3.8±0.9;1.1
Aug, 1996	I-131	MI - 5978, 5979	A	-0.1±0.5;0.5	0.4±0.4;0.4
Aug, 1996	K-40	MI - 5978, 5979	A	1,468.4±179.0;268.2	1,560.8±173.0;273.8
Aug, 1996	Co-60	VE - 5950, 5951	A	0.0±0.0;0.0	0.0±0.0;0.0
Aug, 1996	Cs-137	VE - 5950, 5951	A	-0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Gr. Beta	VE - 6031, 6032	A	2.9±0.1;0.3	2.7±0.2;0.3
Sep, 1996	K-40	VE - 6031, 6032	A	3.2±0.2;0.4	3.4±0.3;0.5
Sep, 1996	Sr-89	VE - 6031, 6032	A	0.0±0.0;0.0	-0.0±0.0;0.0

Table A-4. In-house "duplicate" program

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Concentration in pCi/L[a] Second Result
Sep, 1996	Sr-90	VE - 6031, 6032	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Co-60	LW - 6052, 6053	A	0.9±1.1;1.1	-0.5±1.5;1.5
Sep, 1996	Cs-134	LW - 6052, 6053	A	0.3±1.3;1.3	0.9±2.3;2.3
Sep, 1996	Cs-137	LW - 6052, 6053	A	0.0±1.3;1.3	-0.1±1.9;1.9
Sep, 1996	Gr. Beta	LW - 6052, 6053	A	2.1±0.7;0.8	3.1±0.6;0.7
Sep, 1996	I-131	LW - 6052, 6053	A	-0.4±0.4;0.4	0.0±0.3;0.3
Sep, 1996	I-131(g)	LW - 6052, 6053	A	1.2±6.0;6.0	1.7±10.1;10.1
Sep, 1996	K-40	LW - 6052, 6053	A	66.8±30.1;30.8	43.6±27.1;27.4
Sep, 1996	Gr. Beta	WW - 6181, 6182	A	1.6±0.6;0.7	1.0±0.6;0.6
Sep, 1996	H-3	WW - 6181, 6182	A	5.4±82.7;82.8	62.9±85.2;85.6
Sep, 1996	I-131	MI - 6006, 6007	A	0.1±0.3;0.3	0.0±0.3;0.3
Sep, 1996	K-40	MI - 6006, 6007	A	1,472.0±166.0;260.1	1,502.9±110.0;232.1
Sep, 1996	Gr. Beta	CW - 6128, 6129	A	4.6±1.6;1.8	4.6±1.6;1.8
Sep, 1996	Gr. Beta	CW - 6128, 6129	A	4.6±1.6;1.8	4.6±1.6;1.8
Sep, 1996	Gr. Beta	CW - 6128, 6129	A	0.2±1.1;1.1	0.3±1.1;1.1
Sep, 1996	H-3	SW - 6204, 6205	A	113.3±85.4;86.8	61.4±83.2;83.6
Sep, 1996	Co-60	MI - 6225, 6226	A	1.9±2.9;2.9	-0.6±2.6;2.6
Sep, 1996	Cs-137	MI - 6225, 6226	A	2.8±2.7;2.7	-0.3±2.5;2.5
Sep, 1996	I-131	MI - 6225, 6226	A	-0.3±0.4;0.4	0.3±0.4;0.4
Sep, 1996	K-40	VE - 6270, 6271	A	2.2±0.3;0.4	2.1±0.3;0.3
Sep, 1996	H-3	WW - 6331, 6332	A	16,801.2±999.6;2,494.1	17,111.9±1,006.0;2,535.4
Sep, 1996	Gr. Beta	CW - 6294, 6295	A	4.8±1.2;1.4	3.9±1.6;1.7
Sep, 1996	Gr. Beta	CW - 6294, 6295	A	1.0±1.2;1.2	-0.3±1.1;1.1
Sep, 1996	K-40	VE - 6379, 6380	A	1.7±0.3;0.3	1.8±0.2;0.3
Sep, 1996	Sr-89	VE - 6379, 6380	A	-0.0±0.0;0.0	-0.0±0.0;0.0
Sep, 1996	Sr-90	VE - 6379, 6380	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Gr. Beta	CW - 6432, 6433	A	3.2±1.5;1.6	3.2±1.5;1.6
Sep, 1996	Gr. Beta	VE - 6481, 6482	A	2.8±0.1;0.3	2.8±0.1;0.3
Sep, 1996	K-40	VE - 6481, 6482	A	3.4±0.2;0.4	3.6±0.2;0.4
Sep, 1996	H-3	SW - 6524, 6525	A	223.5±90.8;95.7	151.2±87.9;90.2
Sep, 1996	Gr. Beta	SWT - 6545, 6546	A	2.7±0.5;0.7	2.1±0.5;0.6
Sep, 1996	Co-60	AP - 7220, 7221	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Cs-134	AP - 7220, 7221	A	-0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Cs-137	AP - 7220, 7221	A	-0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	I-131(g)	AP - 7220, 7221	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	K-40	AP - 7220, 7221	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Gr. Alpha	DW - 6572, 6573	A	1.0±0.6;0.7	0.3±0.3;0.3
Sep, 1996	Gr. Beta	DW - 6572, 6573	A	2.9±0.8;0.9	2.5±0.3;0.5

Table A-4. In-house "duplicate" program

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Sep, 1996	H-3	SW - 6593, 6594	A	58.2±80.0;80.4	90.0±81.4;82.3
Sep, 1996	Gr. Beta	CW - 6616, 6617	A	3.1±1.6;1.7	5.0±1.7;1.9
Sep, 1996	Gr. Beta	CW - 6616, 6617	A	0.3±1.1;1.1	-0.3±1.0;1.0
Sep, 1996	H-3	PW - 6675, 6676	A	21.7±80.1;80.2	88.5±83.1;83.9
Sep, 1996	Co-60	AP - 7537, 7538	A	0.0±0.0;0.0	-0.0±0.0;0.0
Sep, 1996	Cs-137	AP - 7537, 7538	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Co-60	VE - 6654, 6655	A	-0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Cs-137	VE - 6654, 6655	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Gr. Beta	CW - 6719, 6720	A	3.0±1.4;1.5	2.1±1.5;1.5
Sep, 1996	Gr. Beta	CW - 6719, 6720	A	-0.3±1.1;1.1	1.1±1.2;1.2
Sep, 1996	Co-60	AP - 7558, 7559	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Co-60	AP - 7558, 7559	A	0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Cs-137	AP - 7558, 7559	A	-0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	Cs-137	AP - 7558, 7559	A	-0.0±0.0;0.0	0.0±0.0;0.0
Sep, 1996	H-3	WW - 6696, 6697	A	313.7±99.0;107.8	302.7±98.6;106.8
Sep, 1996	Gr. Alpha	LW - 7118, 7119	A	0.0±0.4;0.4	-0.2±0.4;0.4
Sep, 1996	Gr. Beta	LW - 7118, 7119	A	2.1±0.4;0.5	1.6±0.6;0.6
Sep, 1996	H-3	LW - 7118, 7119	A	89.3±81.1;82.0	92.8±81.3;82.3
Oct, 1996	Gr. Beta	E - 6783, 6784	A	0.9±0.0;0.1	1.0±0.0;0.1
Oct, 1996	K-40	E - 6783, 6784	A	0.9±0.1;0.2	1.1±0.2;0.2
Oct, 1996	Sr-89	E - 6783, 6784	A	-0.0±0.0;0.0	-0.0±0.0;0.0
Oct, 1996	Sr-90	E - 6783, 6784	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	H-3	SW - 6877, 6878	A	1,223.5±119.6;204.9	1,320.2±122.4;217.3
Oct, 1996	Sr-89	AP - 7199, 7200	A	-0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Sr-90	AP - 7199, 7200	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	I-131	MI - 6746, 6747	A	-0.1±0.3;0.3	0.1±0.3;0.3
Oct, 1996	K-40	MI - 6746, 6747	A	1,427.9±180.0;264.8	1,425.3±208.0;284.3
Oct, 1996	Co-60	F - 6824, 6825	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Cs-137	F - 6824, 6825	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Co-60	WW - 6926, 6927	A	0.9±1.4;1.4	-0.4±2.8;2.8
Oct, 1996	Cs-137	WW - 6926, 6927	A	1.3±1.5;1.5	1.8±3.2;3.2
Oct, 1996	H-3	WW - 6926, 6927	A	7.1±78.3;78.3	-3.5±77.8;77.8
Oct, 1996	Co-60	G - 7001, 7002	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Cs-134	G - 7001, 7002	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Cs-137	G - 7001, 7002	A	-0.0±0.0;0.0	-0.0±0.0;0.0
Oct, 1996	Gr. Beta	G - 7001, 7002	A	5.2±0.3;0.6	5.2±0.3;0.6
Oct, 1996	I-131(g)	G - 7001, 7002	A	-0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	K-40	G - 7001, 7002	A	6.2±0.7;0.9	5.5±0.4;0.7

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Oct, 1996	Cs-137	SS - 7024, 7025	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Gr. Beta	SS - 7024, 7025	A	7.7±2.0;2.2	6.5±1.8;2.0
Oct, 1996	K-40	SS - 7024, 7025	A	7.2±0.6;0.9	6.9±0.4;0.8
Oct, 1996	Co-60	LW - 7045, 7046	A	1.6±3.1;3.1	-0.8±2.9;2.9
Oct, 1996	Cs-134	LW - 7045, 7046	A	-0.0±3.0;3.0	-1.9±3.1;3.1
Oct, 1996	Cs-137	LW - 7045, 7046	A	-1.0±2.9;2.9	1.9±3.0;3.0
Oct, 1996	Gr. Beta	LW - 7045, 7046	A	2.8±0.7;0.9	2.9±0.5;0.7
Oct, 1996	I-131	LW - 7045, 7046	A	0.2±0.4;0.4	-0.2±0.5;0.5
Oct, 1996	I-131(g)	LW - 7045, 7046	A	-5.2±29.9;29.9	5.8±27.7;27.7
Oct, 1996	K-40	LW - 7045, 7046	A	51.3±37.9;38.2	34.5±33.8;34.0
Oct, 1996	K-40	F - 6952, 6953	A	2.8±0.2;0.3	2.7±0.1;0.3
Oct, 1996	Co-60	MI - 6853, 6854	A	-0.8±4.8;4.8	1.8±2.8;2.8
Oct, 1996	Cs-137	MI - 6853, 6854	A	1.6±3.6;3.6	-0.9±2.4;2.4
Oct, 1996	I-131	MI - 6853, 6854	A	-0.1±0.3;0.3	0.2±0.3;0.3
Oct, 1996	Co-60	MI - 6854, 6855	A	1.8±2.8;2.8	0.5±4.9;4.9
Oct, 1996	Co-60	MI - 6854, 6855	A	1.8±2.8;2.8	0.5±4.9;4.9
Oct, 1996	Cs-137	MI - 6854, 6855	A	-0.9±2.4;2.4	1.6±3.3;3.3
Oct, 1996	Cs-137	MI - 6854, 6855	A	-0.9±2.4;2.4	1.6±3.3;3.3
Oct, 1996	I-131	MI - 6854, 6855	A	0.0±0.2;0.2	-0.2±0.3;0.3
Oct, 1996	I-131	MI - 6854, 6855	A	0.2±0.3;0.3	-0.2±0.3;0.3
Oct, 1996	I-131	MI - 6854, 6855	A	0.2±0.3;0.3	-0.2±0.3;0.3
Oct, 1996	Gr. Beta	BS - 7138, 7139	A	9.6±2.5;2.6	7.9±2.3;2.5
Oct, 1996	K-40	BS - 7138, 7139	A	7.2±0.4;0.8	7.2±0.5;0.9
Oct, 1996	Cs-137	SO - 7306, 7307	A	0.2±0.0;0.0	0.2±0.0;0.0
Oct, 1996	K-40	SO - 7306, 7307	A	9.5±0.5;1.1	9.5±0.7;1.2
Oct, 1996	Gr. Beta	BO - 7747, 7748	A	1.7±0.3;0.4	1.5±0.3;0.3
Oct, 1996	K-40	BO - 7747, 7748	A	0.7±0.2;0.2	0.6±0.1;0.2
Oct, 1996	K-40	F - 7328, 7329	A	2.1±0.5;0.5	1.7±0.4;0.4
Oct, 1996	I-131	MI - 7285, 7286	A	-0.1±0.2;0.2	-0.1±0.2;0.2
Oct, 1996	Gr. Beta	CW - 7176, 7177	A	3.1±1.0;1.2	2.2±1.0;1.1
Oct, 1996	Sr-89	MI - 7351, 7352	A	-0.5±1.3;1.3	-2.7±1.2;1.2
Oct, 1996	Sr-90	MI - 7351, 7352	A	1.6±0.4;0.4	1.6±0.4;0.4
Oct, 1996	K-40	VE - 7425, 7426	A	1.9±0.2;0.3	1.7±0.3;0.3
Oct, 1996	Co-60	MI - 7514, 7515	A	2.2±5.1;5.1	5.9±5.4;5.4
Oct, 1996	Co-60	MI - 7514, 7515	A	2.2±5.1;5.1	5.9±5.4;5.4
Oct, 1996	Cs-137	MI - 7514, 7515	A	0.3±3.4;3.4	1.3±4.3;4.3
Oct, 1996	Cs-137	MI - 7514, 7515	A	0.3±3.4;3.4	1.3±4.3;4.3
Oct, 1996	I-131	MI - 7514, 7515	A	-0.0±0.3;0.3	0.0±0.3;0.3

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[a] Rejected	Concentration in pCi/L[a] First Result	Second Result
Oct, 1996	Co-60	F - 7584, 7585	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Cs-137	F - 7584, 7585	A	0.0±0.0;0.0	0.0±0.0;0.0
Oct, 1996	Co-60	WW - 7653, 7654	A	0.5±1.7;1.7	-3.1±2.8;2.8
Oct, 1996	Co-60	WW - 7653, 7654	A	0.5±1.7;1.7	-3.1±2.8;2.8
Oct, 1996	Cs-137	WW - 7653, 7654	A	-0.3±2.0;2.0	-1.4±3.6;3.6
Oct, 1996	Cs-137	WW - 7653, 7654	A	-0.3±2.0;2.0	-1.4±3.6;3.6
Oct, 1996	H-3	WW - 7653, 7654	A	-20.6±75.9;75.9	27.1±78.1;78.2
Oct, 1996	K-40	SS - 8040, 8041	A	22.2±0.8;2.4	23.5±0.9;2.5
Oct, 1996	Gr. Beta	SWT - 7972, 7973	A	2.7±0.5;0.7	2.1±0.5;0.6
Oct, 1996	Gr. Beta	CW - 7794, 7795	A	1.2±1.7;1.7	2.4±1.8;1.8
Oct, 1996	Gr. Beta	DW - 7994, 7995	A	1.6±0.5;0.5	1.8±0.5;0.5
Oct, 1996	H-3	DW - 7994, 7995	A	64.1±81.7;82.1	29.6±80.1;80.2
Nov, 1996	Gr. Beta	WW - 8121, 8122	A	5.2±0.8;1.1	4.9±0.7;1.1
Nov, 1996	H-3	WW - 8121, 8122	A	49.2±78.3;78.6	25.8±77.2;77.3
Nov, 1996	Gr. Beta	CW - 8089, 8090	A	2.1±1.8;1.8	-0.1±1.6;1.6
Nov, 1996	Gr. Beta	CW - 8089, 8090	A	-0.3±1.5;1.5	0.0±1.6;1.6
Nov, 1996	Gr. Beta	SWU - 8213, 8214	A	2.6±0.6;0.7	2.0±0.6;0.7
Nov, 1996	H-3	SWU - 8213, 8214	A	257.9±86.7;93.5	234.9±85.7;91.5
Nov, 1996	K-40	SWU - 8213, 8214	A	109.3±41.2;42.6	97.1±52.0;52.9
Nov, 1996	Gr. Beta	CW - 8302, 8303	A	0.9±1.4;1.4	2.1±1.4;1.5
Nov, 1996	I-131	MI - 8337, 8338	A	-0.0±0.2;0.2	0.1±0.2;0.2
Nov, 1996	K-40	MI - 8337, 8338	A	1,454.6±91.6;218.0	1,365.5±193.0;267.8
Nov, 1996	H-3	WW - 8561, 8562	A	4,719.0±197.0;671.3	4,718.9±197.2;671.4
Nov, 1996	Gr. Beta	SW - 8581, 8582	A	3.2±0.7;0.8	2.5±0.6;0.7
Nov, 1996	Gr. Alpha	WW - 8681, 8682	A	0.1±1.8;1.8	-1.7±1.5;1.6
Nov, 1996	Gr. Beta	WW - 8681, 8682	A	2.8±1.7;1.7	1.3±1.7;1.7
Nov, 1996	Gr. Beta	CW - 8612, 8613	A	2.6±1.5;1.6	1.9±1.4;1.5
Nov, 1996	Gr. Beta	CW - 8612, 8613	A	0.1±1.1;1.1	-0.8±1.1;1.1
Nov, 1996	Co-60	CW - 9219, 9220	A	0.5±1.9;1.9	-0.3±1.7;1.7
Nov, 1996	Cs-137	CW - 9219, 9220	A	1.4±2.0;2.0	0.2±1.6;1.6
Nov, 1996	H-3	CW - 9219, 9220	A	2,091.7±147.1;320.2	2,206.3±149.9;335.4
Nov, 1996	Gr. Alpha	CW - 8830, 8831	A	0.2±0.3;0.3	0.4±0.3;0.3
Nov, 1996	Gr. Beta	CW - 8830, 8831	A	11.1±0.6;1.8	10.2±0.6;1.7
Nov, 1996	H-3	CW - 8830, 8831	A	2,053.5±144.0;314.2	2,112.2±145.5;322.0
Nov, 1996	Sr-89	CW - 8830, 8831	A	-0.3±0.5;0.5	-0.3±0.6;0.6
Nov, 1996	Sr-90	CW - 8830, 8831	A	0.3±0.3;0.3	0.3±0.4;0.4
Dec, 1996	Gr. Beta	SW - 8635, 8636	A	2.5±0.8;0.9	3.1±0.8;0.9
Dec, 1996	K-40	SW - 8635, 8636	A	90.1±52.8;53.6	90.4±51.9;52.7

Table A-4. In-house "duplicate" program

Date Collected	Analysis	Lab Codes[b]	Accepted[a] Rejected	Concentration in pCi/L[a] First Result	Second Result
Dec, 1996	Gr. Beta	DW - 8660, 8661	A	2.1±0.6;0.7	1.9±0.6;0.7
Dec, 1996	H-3	DW - 8660, 8661	A	110.1±83.7;85.0	117.3±84.0;85.5
Dec, 1996	I-131	MI - 8704, 8705	A	-0.3±0.3;0.3	-0.3±0.3;0.3
Dec, 1996	K-40	MI - 8704, 8705	A	1,301.2±141.0;226.3	1,342.9±150.0;236.3
Dec, 1996	Co-60	MI - 8725, 8726	A	0.5±2.8;2.8	0.4±4.4;4.4
Dec, 1996	Cs-134	MI - 8725, 8726	A	1.2±2.3;2.3	-0.6±3.8;3.8
Dec, 1996	Cs-137	MI - 8725, 8726	A	1.8±2.5;2.6	1.1±3.4;3.4
Dec, 1996	I-131	MI - 8725, 8726	A	-0.2±0.2;0.2	-0.2±0.2;0.2
Dec, 1996	I-131(g)	MI - 8725, 8726	A	-1.0±3.4;3.4	4.5±4.9;4.9
Dec, 1996	K-40	MI - 8725, 8726	A	1,402.2±111.0;220.7	1,297.5±150.0;231.6
Dec, 1996	Sr-89	MI - 8725, 8726	A	-1.1±1.0;1.0	-1.0±1.0;1.0
Dec, 1996	Sr-90	MI - 8725, 8726	A	1.3±0.4;0.4	1.1±0.4;0.4
Dec, 1996	Cs-137	SO - 8802, 8803	A	0.5±0.0;0.1	0.5±0.0;0.1
Dec, 1996	Gr. Alpha	SO - 8802, 8803	A	14.0±4.3;4.5	13.9±4.0;4.3
Dec, 1996	Gr. Beta	SO - 8802, 8803	A	21.4±3.1;3.8	21.5±2.9;3.6
Dec, 1996	K-40	SO - 8802, 8803	A	11.1±0.7;1.3	10.8±0.6;1.2
Dec, 1996	Gr. Beta	SWU - 9540, 9541	A	7.5±0.9;1.5	6.0±0.8;1.2
Dec, 1996	H-3	SWU - 9540, 9541	A	90.2±86.7;87.6	86.5±86.6;87.3
Dec, 1996	Co-60	F - 9040, 9041	A	-0.0±0.0;0.0	-0.0±0.0;0.0
Dec, 1996	Cs-134	F - 9040, 9041	A	-0.0±0.0;0.0	0.0±0.0;0.0
Dec, 1996	Cs-137	F - 9040, 9041	A	0.0±0.0;0.0	0.0±0.0;0.0
Dec, 1996	Gr. Beta	F - 9040, 9041	A	3.6±0.1;0.4	3.5±0.1;0.4
Dec, 1996	I-131(g)	F - 9040, 9041	A	0.0±0.0;0.0	-0.0±0.0;0.0
Dec, 1996	K-40	F - 9040, 9041	A	3.3±0.5;0.6	3.0±0.4;0.5
Dec, 1996	Gr. Beta	CW - 9109, 9110	A	4.1±1.2;1.4	2.0±1.5;1.6
Dec, 1996	Gr. Beta	CW - 9109, 9110	A	-0.9±1.3;1.3	-1.1±1.3;1.3
Dec, 1996	I-131	MI - 9197, 9198	A	0.1±0.4;0.4	-0.1±0.4;0.4
Dec, 1996	K-40	MI - 9197, 9198	A	1,462.6±143.0;245.0	1,381.2±149.0;2[illegible]
Dec, 1996	Co-60	WW - 9269, 9270	A	-1.1±2.3;2.3	-0.3±2.6;2.6
Dec, 1996	Cs-137	WW - 9269, 9270	A	-1.2±2.2;2.2	0.2±2.6;2.6
Dec, 1996	H-3	WW - 9269, 9270	A	1,051.1±116.8;184.6	1,126.1±119.0;194.0
Dec, 1996	Co-60	LW - 9291, 9292	A	-0.2±2.0;2.0	1.2±2.3;2.3
Dec, 1996	Cs-137	LW - 9291, 9292	A	4.0±2.2;2.3	0.2±2.8;2.8
Dec, 1996	Gr. Beta	LW - 9291, 9292	A	4.9±1.3;1.5	7.3±1.4;1.8
Dec, 1996	H-3	SW - 9743, 9744	A	1.2±89.8;89.8	51.6±91.8;92.1
Dec, 1996	Gr. Beta	SW - 9414, 9415	A	4.0±0.7;0.9	4.6±0.8;1.0
Dec, 1996	Gr. Beta	DW - 9520, 9521	A	6.2±1.3;1.6	5.7±1.2;1.5
Dec, 1996	I-131	DW - 9520, 9521	A	0.3±0.4;0.4	0.2±0.4;0.4

Table A-4. In-house "duplicate" program.

Date Collected	Analysis	Lab Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	Second Result
Dec, 1996	Gr. Beta	CW - 9383, 9384	A	4.8±1.7;1.9	4.6±1.6;1.7
Dec, 1996	Gr. Beta	CW - 9383, 9384	A	0.6±1.5;1.5	0.4±1.5;1.5
Dec, 1996	H-3	SW - 9433, 9434	A	309.3±91.1;100.3	247.1±88.6;94.8
Dec, 1996	H-3	SW - 9497, 9498	A	241.0±91.9;97.6	126.6±87.3;88.9
Dec, 1996	Gr. Beta	DW - 9564, 9565	A	2.0±0.6;0.7	2.2±0.6;0.7
Dec, 1996	H-3	DW - 9564, 9565	A	120.8±83.4;85.0	94.2±82.2;83.2

[a] All concentrations are reported in pCi/L, except solid samples, which are reported in pCi/g wet. Results are reported as Activity±Counting Error;Total Propagated Uncertainty (TPU).

[b] Lab codes are comprised of the sample media and the sample numbers. Client codes have been eliminated to protect client anonymity.

[c] Acceptance is based on the difference of the two results divided by the pooled standard deviation being less than two, where the pooled standard deviation is the square root of the sum of the squares of the TPUs.

Table A-5. 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 Result ±Standard Deviat
STSO-776	SOIL	Sep, 1996	Am-241	28.7 ± 2.8	20.9 - 37.3	27.0 2.7
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	Co-60	812.0 ± 83.5	568.4 - 1,055.6	879.0 87.9
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	Cs-137	1,531.0 ± 193.4	1,071.7 - 1,990.3	1,716.0 171.6
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	Pu-238	15.9 ± 1.8	11.1 - 20.7	13.0 1.3
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	Pu-239/240	19.7 ± 2.0	13.8 - 25.6	18.0 1.8
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	Sr-90	536 ± 57.1	375.2 - 696.8	441.0 44.1
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	U-234/233	63.9 ± 7.3	44.7 - 83.1	59.0 5.9
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						
STSO-776	SOIL	Sep, 1996	U-238	64.0 ± 6.4	44.8 - 83.2	60.0 6.0
Standard deviation for three determinations not reported in Mixed Analyte Performance Evaluation Program Summary Report.						

[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 becquerels per kilogram as requested by the Department of Energy.

[c] Unless otherwise indicated, the TBEESML 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 A-6. 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] Teledyne Result[c]	EML Result[d]	Control Limits[e]
STW-755	Water	Mar, 1996	Am-241	0.8 ± 0.1; 0.1	0.8 ± 0.0	0.7 - 1.4
STW-755	Water	Mar, 1996	Co-60	33.6 ± 1.0; 4.9	32.8 ± 0.6	0.9 - 1.2
STW-755	Water	Mar, 1996	Cs-137	42.8 ± 1.3; 6.3	38.3 ± 0.9	0.9 - 1.3
STW-755	Water	Mar, 1996	Fe-55	109.0 ± 21.7; 24.3	83.0 ± 3.4	0.3 - 1.6
STW-755	Water	Mar, 1996	H-3	434.0 ± 34.1; 68.2	251.0 ± 11.4	0.7 - 1.5
STW-755	Water	Mar, 1996	Mn-54	41.9 ± 1.4; 4.4	38.4 ± 1.2	0.9 - 1.2
STW-755	Water	Mar, 1996	Pu-238	0.9 ± 0.1; 0.1	1.0 ± 0.1	0.7 - 1.3
STW-755	Water	Mar, 1996	[illegible]	0.7 ± 0.1; 0.1	0.8 ± 0.1	0.6 - 1.4
STW-755	Water	Mar, 1996	Sr-9[illegible]	2.2 ± 0.7; 0.7	1.5 ± 0.0	0.7 - 1.7
STW-756	Water	Mar, 1996	Gr. [illegible]pha	2,180.0 ± 53.5; 271.3	1,850.0 ± 185.0	0.6 - 1.3
STW-756	Water	Mar, 1996	Gr. Beta	872.0 ± 27.0; 137.0	744.0 ± 74.0	0.8 - 1.7
STSO-757	Soil	Mar, 1996	Am-241	6.2 ± 2.9; 2.9	3.7 ± 0.5	0.5 - 2.4
STSO-757	Soil	Mar, 1996	Cs-137	404.0 ± 0.2; 40.4	359.0 ± 10.0	0.7 - 1.4
STSO-757	Soil	Mar, 1996	K-40	525.0 ± 23.3; 57.4	465.0 ± 30.0	0.7 - 1.6
STSO-757	Soil	Mar, 1996	Pu-238	42.3 ± 1.6; 4.5	43.0 ± 2.4	0.2 - 2.0
STSO-757	Soil	Mar, 1996	Pu-239	9.0 ± 0.7; 1.1	9.2 ± 0.3	0.6 - 2.0
STSO-757	Soil	Mar, 1996	Sr-90	1,200.0 ± 32.3; 124.3	1,340.0 ± 113.0	0.6 - 3.0
STSO-757	Soil	Mar, 1996	Uranium	68.2 ± 2.4; 7.2	71.7 ± 4.2	0.3 - 1.5
STVE-758	Vegetation	Mar, 1996	Am-241	6.1 ± 1.3; 1.4	5.6 ± 0.2	0.6 - 2.9
STVE-758	Vegetation	Mar, 1996	Cm-244	6.0 ± 1.2; 1.3	4.4 ± 0.2	0.4 - 1.9
STVE-758	Vegetation	Mar, 1996	Co-60	65.6 ± 4.0; 9.8	59.7 ± 1.0	0.6 - 1.5
STVE-758	Vegetation	Mar, 1996	Cs-137	1,100.0 ± 12.6; 150.1	944.0 ± 16.2	0.8 - 1.5
STVE-758	Vegetation	Mar, 1996	K-40	1,190.0 ± 61.6; 134.0	1,030.0 ± 33.0	0.5 - 1.5
STVE-758	Vegetation	Mar, 1996	Pu-239	9.2 ± 1.3; 1.6	9.8 ± 1.2	0.6 - 2.0
STVE-758	Vegetation	Mar, 1996	Sr-90	1,210.0 ± 32.2; 125.2	1,300.0 ± 52.4	0.5 - 1.4
STAF-759	Air Filter	Mar, 1996	Am-241	0.3 ± 0.0; 0.0	0.2 ± 0.0	0.6 - 1.9
STAF-759	Air Filter	Mar, 1996	Ce-144	23.2 ± 1.0; 2.5	33.3 ± 3.3	0.6 - 1.3
STAF-759	Air Filter	Mar, 1996	Co-57	6.1 ± 0.1; 0.6	8.9 ± 0.9	0.6 - 1.3
STAF-759	Air Filter	Mar, 1996	Co-60	26.5 ± 0.4; 2.7	29.5 ± 2.9	0.7 - 1.3
STAF-759	Air Filter	Mar, 1996	Cs-134	12.9 ± 0.3; 1.3	14.7 ± 1.5	0.7 - 1.2
STAF-759	Air Filter	Mar, 1996	Cs-137	6.2 ± 0.9; 1.1	6.6 ± 0.7	0.7 - 1.3
STAF-759	Air Filter	Mar, 1996	Mn-54	3.3 ± 0.4; 0.5	3.4 ± 0.4	0.8 - 1.3
STAF-759	Air Filter	Mar, 1996	Pu-238	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.6 - 1.6
STAF-759	Air Filter	Mar, 1996	Pu-239	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.7 - 1.6
STAF-759	Air Filter	Mar, 1996	Ru-106	10.2 ± 1.9; 2.1	11.6 ± 1.4	0.5 - 1.6
STAF-759	Air Filter	Mar, 1996	Sb-125	10.1 ± 0.8; 1.3	9.8 ± 1.0	0.4 - 1.4
STAF-759	Air Filter	Mar, 1996	Sr-90	1.1 ± 0.2; 0.3	1.1 ± 0.0	0.6 - 2.3
STAF-759	Air Filter	Mar, 1996	Uranium	0.1 ± 0.0; 0.0	0.1 ± 0.0	0.8 - 2.9

Table A-6. 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] Teledyne Result[c]	EML Result[d]	Control Limits[e]
STAF-760	Air Filter	Mar, 1996	Gr. Alpha	2.2 ± 0.1; 0.2	1.6 ± 0.2	0.8 - 1.6
STAF-760	Air Filter	Mar, 1996	Gr. Beta	2.0 ± 0.0; 0.2	1.8 ± 0.2	0.8 - 1.9
STW-770	Water	Sep, 1996	Am-241	1.3 ± 0.2; 0.2	1.1 ± 0.0	0.6 - 1.7
STW-770	Water	Sep, 1996	Co-60	65.0 ± 2.2; 9.6	61.1 ± 0.7	0.9 - 1.2
STW-770	Water	Sep, 1996	Cs-137	96.1 ± 3.0; 14.2	89.5 ± 1.4	0.9 - 1.3
STW-770	Water	Sep, 1996	Gr. Alpha	993.0 ± 12.2; 121.8	1,210.0 ± 121.0	0.5 - 1.3
STW-770	Water	Sep, 1996	Gr. Beta	579.0 ± 8.1; 89.5	540.0 ± 54.0	0.6 - 1.6
STW-770	Water	Sep, 1996	H-3	488.0 ± 34.6; 74.8	587.0 ± 58.0	0.7 - 1.9
STW-770	Water	Sep, 1996	Mn-54	65.0 ± 3.0; 7.1	60.5 ± 0.6	0.9 - 1.2
STW-770	Water	Sep, 1996	Pu-238	1.3 ± 0.3; 0.4	1.9 ± 0.1	0.7 - 1.3
An investigation was conducted. No errors in calculations or transcription were noted. The analysis was repeated in duplicate under the observation of the Technical Lead. No descrepancies were noted in the performance of the procedure. The result of the reanalysis was 2.14±0.11 Bq/L. No further action is planned.						
STW-770	Water	Sep, 1996	Pu-239	0.7 ± 0.2; 0.3	0.8 ± 0.0	0.8 - 1.4
STW-770	Water	Sep, 1996	Sr-90	3.6 ± 0.7; 0.8	2.7 ± 0.2	0.7 - 1.7
STW-770	Water	Sep, 1996	U-234	0.5 ± 0.2; 0.2	0.5 ± 0.0	0.8 - 1.5
STW-770	Water	Sep, 1996	U-238	0.4 ± 0.1; 0.1	0.5 ± 0.4	0.8 - 1.4
STSO-771	Soil	Sep, 1996	Am-241	15.6 ± 3.8; 4.1	13.5 ± 0.5	0.5 - 2.7
STSO-771	Soil	Sep, 1996	Co-60	4.0 ± 2.5; 2.5	2.9 ± 0.2	0.5 - 1.5
STSO-771	Soil	Sep, 1996	Cs-137	1,750.0 ± 24.4; 176.7	1,550.0 ± 22.2	0.8 - 1.3
STSO-771	Soil	Sep, 1996	K-40	369.0 ± 59.5; 70.0	300.0 ± 25.0	0.7 - 1.7
STSO-771	Soil	Sep, 1996	Pu-238	0.8 ± 0.4; 0.4	1.1 ± 0.2	0.4 - 1.9
STSO-771	Soil	Sep, 1996	Pu-239	21.0 ± 1.9; 3.1	21.8 ± 1.1	0.7 - 1.9
STSO-771	Soil	Sep, 1996	Sr-90	63.6 ± 4.0; 7.5	69.9 ± 5.1	0.5 - 2.8
STSO-771	Soil	Sep, 1996	U-234	37.2 ± 3.8; 5.3	39.2 ± 2.4	0.4 - 1.3
STSO-771	Soil	Sep, 1996	U-238	40.8 ± 4.0; 5.7	41.6 ± 0.6	0.4 - 1.6
STVE-772	Vegetation	Sep, 1996	Am-241	1.5 ± 0.9; 0.9	1.2 ± 0.4	0.7 - 2.8
STVE-772	Vegetation	Sep, 1996	Cm-244	0.6 ± 0.5; 0.5	0.8 ± 0.1	0.5 - 1.7
STVE-772	Vegetation	Sep, 1996	Co-60	14.0 ± 4.4; 4.8	10.9 ± 0.7	0.6 - 1.4
STVE-772	Vegetation	Sep, 1996	Cs-137	219.0 ± 10.1; 31.4	190.0 ± 6.7	0.8 - 1.5
STVE-772	Vegetation	Sep, 1996	K-40	1,160.0 ± 99.4; 152.8	992.0 ± 29.0	0.8 - 1.5
STVE-772	Vegetation	Sep, 1996	Sr-90	1,420.0 ± 35.1; 146.3	1,390.0 ± 12.0	0.5 - 1.3
STAP-773	Air Filter	Sep, 1996	Co-57	11.8 ± 0.3; 1.2	14.8 ± 0.8	0.6 - 1.2
STAP-773	Air Filter	Sep, 1996	Co-60	9.2 ± 0.4; 1.0	8.6 ± 0.4	0.7 - 1.2
STAP-773	Air Filter	Sep, 1996	Cs-134	9.6 ± 0.4; 1.0	10.8 ± 0.4	0.7 - 1.2
STAP-773	Air Filter	Sep, 1996	Cs-137	8.7 ± 0.4; 1.0	8.5 ± 0.4	0.7 - 1.3
STAP-773	Air Filter	Sep, 1996	Gr. Alpha	0.7 ± 0.0; 0.1	1.2 ± 0.1	0.8 - 1.6
An investigation was conducted and a transcription error while calculating the result was discovered. The recalculated value is 1.15±0.01Bq/filter. No further action is planned.						

Table A-6. 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] Teledyne Result[c]	EML Result[d]	Control Limits[e]
STAP-773	Air Filter	Sep, 1996	Gr. Beta	0.5 ± 0.0; 0.1	0.5 ± 0.1	0.7 - 1.8
STAP-773	Air Filter	Sep, 1996	Mn-54	7.1 ± 0.5; 0.8	6.4 ± 0.3	0.8 - 1.3
STAP-773	Air Filter	Sep, 1996	Ru-106	11.5 ± 3.2; 3.4	10.8 ± 1.1	0.6 - 1.3
STAP-773	Air Filter	Sep, 1996	Sb-125	12.4 ± 1.0; 1.6	10.8 ± 0.5	0.6 - 1.4

[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 with the following exceptions: Air filter results are reported in Bq/filter, Soil results are reported in Bq/kg, Vegetation results are reported in Bq/kg. The results of elemental uranium are reported in uCi/filter, 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 and are established from percentiles of historic data distributions (1982-1992). The evaluation of this historic data and the development of the control limits are presented in DOE report EML-564.

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