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ComEd

March 28, 1997

JSPLTR #97-0061

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-0001

Subject: Dresden Station
Annual Radiological Environmental Operating Report
Docket Numbers 50-010, 50-237, and 50-249

The purpose of this letter is to submit the Dresden Station Annual Radiological Environmental Operating Report. The attached 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.

If you have any questions concerning this report, please refer them to Mr. Cliff Howland, Dresden Station Radiation Protection Manager, at (815) 942-2920 extension 3481.

Sincerely yours,

J. Stephen Perry
Site Vice President
Dresden Station

JSP/pc

Enclosure

cc: See Attached Distribution

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DRESDEN STATION

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

1996

MARCH 1997

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INTRODUCTION

The Dresden Station is located approximately twelve miles southwest of Joliet, Illinois at the confluence of the Des Plaines and Kankakee Rivers where they form the Illinois River. This station uses two boiling water reactors (G.E. design) to generate electricity. Unit 1, which began operating in 1960 and had a rated power output of 200 megawatts electrical (MWe), was shut down on August 31, 1984 and is currently being decommissioned. Liquid radwaste from Unit 1 is transferred to Units 2 and 3 for collective processing and discharge. Units 2 and 3 began operating in 1970 and 1971, respectively, each with a net rated power output of 809 MWe. The General Electric Morris Operation Plant (GEMO) is located adjacent to Dresden.

Liquid effluents from Dresden are released to the Illinois River in controlled batches after radioassay of each batch. Gaseous effluents are released to the atmosphere after delay to permit decay of short-lived (noble) gases. Releases to the atmosphere are calculated on the basis of analyses of weekly grab samples of noble gases as well as continuously collected composite samples of iodine and particulate activity sampled during the course of the year. The results of effluent analyses are summarized on a monthly basis and reported to the Nuclear Regulatory Commission as required per Technical Specifications. Airborne concentrations of noble gases, I-131, and particulate radioactivity in offsite areas are calculated using isotopic composition of control effluent and meteorological data.

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

SUMMARY

Gaseous and liquid effluents for the period remained below the Dresden Station Technical Specification limits. Calculations of environmental concentrations based on effluent, Illinois River flow, and meteorological data for the period indicate that consumption by the public of radioactive materials attributable to the Dresden Station does not exceed regulatory limits. Radiation exposure from radionuclides released to the atmosphere represented the critical pathway for the period with a maximum adult dose estimated to be 1.45E-03 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 these analyses 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 and isotopic composition of noble gases, radioiodine, and particulate radioactivity released to the atmosphere during the year are listed in Table 1.1-1. No measurable amount of noble gases was released from Dresden Unit 1 and a total of 6.58E+01 curies of noble gases with a maximum quarterly average release rate of 5.90 µCi/sec was released from Dresden Units 2 and 3.

A total of 1.30E-03 curies of I-131 was released during the year with a maximum quarterly average release rate of 7.17E-5 µCi/sec.

A total of 2.15E-03 curies of beta-gamma emitters was released as airborne particulate matter with a maximum quarterly average release rate of 1.24E-04 µCi/sec. Alpha emitting radionuclides were below detectable levels. Also, 2.63E+0 curies of tritium were released with a maximum quarterly average release rate of 1.41E-01 µCi/sec.

1.2 Liquids Released to Illinois River

A total of 1.24E+07 liters of radioactive liquid wastes containing 2.75E-02 curies of fission and activation products (excluding tritium, noble gases and gross alpha) was discharged from the station. These wastes were released at a maximum quarterly average diluted concentration of 1.64E-08 µCi/ml from Units 2 and 3. During the same period, 1.22E+01 curies of tritium were released with a maximum quarterly average release of 7.65E-06. Alpha emitting radionuclides were below detectable levels Quarterly release values are given in Table 1.2-1.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped to CNSI, Barnwell, South Carolina; AERC, Oak Ridge, Tennessee; SEG, Oak Ridge, Tennessee; Hake, Memphis Tennessee; Enviro-Care, Clive, Utah; and Manufacturing Sciences Corporation, Tennessee. 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 doses are shown in Table 3.1-1 and were calculated based on measured release rates, isotopic composition of the noble gases, and average meteorological data for the period. Isodose contours based on concurrent meteorological data for gamma dose are shown in Figure 3.1-1. Based on measured effluents and meteorological data, the maximum dose to an adult would be 1.45E-03

mrem for the year, with an occupancy or shielding factor of 0.7 included, and based on measured effluents and concurrent meterological data would be 2.07E-03 mrem. The maximum gamma air dose was 9.11E-04 mrad and 1.50E-03 mrad based on concurrent meterological 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 the purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin, and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm^2 and an occupancy factor of 1.0 is used. The skin dose from beta and gamma radiation for the year was 7.95E-04 mrem (Table 3.1-1).

The air concentrations of radioactive noble gases at the offsite receptor locations are given in Figure 3.1-2. The maximum offsite beta air dose for the year was 1.05E-04 mrad.

3.1.2 Radioactive Iodine

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

3.1.2.1 Iodine Concentrations in Air

The calculated concentration contours for iodine in air are shown in Figure 3.1-3. These calculations include an iodine cloud depletion factor which accounts for the phenomenon of elemental iodine deposition on the ground. The maximum iodine offsite average concentration is estimated to be 1.06E-04 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 less than 5.57E-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 offsite average level is estimated to be 4.32E-05 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 ingestion of potable water, eating aquatic foods, and exposure while walking on the shoreline. Not all of these pathways are 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 9.76E-04 mrem and the organ dose was 1.47E-03 mrem (Table 3.2-1).

3.3 Assessment of Dose to Member of Public

During the period January to December, 1996, Dresden Station did not exceed these limits as shown in Table 3.1-1 and Table 3.2-1 (based on yearly average meterological data) and as shown in Figure 3.1-1 (based on concurrent meterological data):

- The RETS limits on dose or dose commitment to a member of the public due to radioactive materials in liquid effluents from each reactor unit (3 mrem to the whole body or 10 mrem to any organ during any calendar quarter; 6 mrem to the whole body or 20 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 mrad for gamma radiation or 20 mrad for beta radiation during any calendar year).

- The RETS limits on dose to a member of the public due to Iodine-131, Iodine-133, tritium, and radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each reactor unit (7.5 mrem to any organ during any calendar quarter; 15 mrem to any organ during any calendar year).

- The 10CFR20 limit on Total Effective Dose Equivalent to individual members of the public (100 mrem) (Table 3.3-1).

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 300' level and wind speed class by atmospheric stability class determined from the temperature difference between the 300' and 35' levels. Data recovery for all measurements on the tower was 99.6% during 1996.

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

5.0 ENVIRONMENTAL MONITORING

Table 5.0-1 and Table 5.0-2 provide an outline of the Radiological Environmental Monitoring Program (REMP) as required in current Technical Specifications. Tables 5.0-3 to 5.0-6 summarize data for the year.

Except for tables of special interest, tabulated results of these analyses are no longer included in the annual report. All data tables are available for inspection at the St tion or in the Corporate Office.

Specific findings for various environmental media are discussed below.

5.1 Gamma Radiation

External radiation dose from onsite sources and noble gases released to the atmosphere was measured using $CaSO_4$:Tm thermoluminescent dosimeters (TLDs). TLD results are listed in Table 5.1-1 and locations are shown in Figures 5.0-1 and 5.0-2.

Quarterly external radiation dose at seventeen air sampling locations averaged 13.0 mR and was similar to that measured in 1985 (13.5 mR), 1986 (14.4 mR), 1987 (15.8 mR), 1988 (14.9 mR), 1989 (15.7 mR), 1990 (14.9 mR), 1991 (14.0 mR), 1992 (15.6 mR), 1993 (15.5 mR), 1994 (14.7 mR) and 1995 (14.1). The differences are not statistically significant.

5.2 Airborne I-131 and Particulate Radioactivity

Locations of the samplers are shown in Figure 5.0-3. Airborne I-131 remained below the LLD of 0.10 pCi/m^3 throughout the year in all analyzed samples.

Gross beta concentrations ranged from 0.4E-02 to 6.1E-02 pCi/m^3 and averaged 2.2 E-02 pCi/m^3, and were similar to those in 1983 (2.0E-02 pCi/m^3), 1984 (2.0E-02 pCi/m^3), 1985 (2.0E-02 pCi/m^3), 1986 (2.5 E-02 pCi/m^3), except for the period from May 17 through June 7 when it was influenced by the nuclear reactor accident at Chernobyl), 1987 (2.4E-02 pCi/m^3), 1988 (2.7 E-02 pCi/m^3), 1989 (2.4 E-02 pCi/m^3), 1990 (2.0 E-02 pCi/m^3) , 1991 (2.0E-02 pCi/m^3), 1992 (2.2E-02 pCi/m^3), 1993 (2.1 E-02 pCi/m^3), 1994 (2.0 E-02 pCi/m^3) and 1995 (2.2E-02 pCi/m^3). Quarterly gamma isotopic results were below the LLD level of 0.01 pCi/m^3.

No radioactivity attributable to station operation was detected in any sample.

5.3 Aquatic Radioactivity

Near station water locations and more distant water locations are shown in Figures 5.0-4 and 5.0-5, respectively.

Cooling water samples were collected daily and composited weekly for gross beta analysis from the Units 1 and 2/3 Inlet Canals and Units 1 and 2/3 Discharge Canals. The yearly gross beta concentration averages for the Inlet Canal and the Discharge Canals for 1996 were 3.7 pCi/L and 3.8 pCi/L, respectively. During the 14 year

sampling period (1983-1996) the concentration averages ranged from 3.1 pCi/L in the Unit 1 Inlet Canal (1992), to an average 6.2 pCi/L in the Units 2/3 Discharge Canals (1985). The overall concentration averages for the 14 years were 4.2 pCi/L for both.

Surface water samples collected weekly from the Illinois River at the EJ&E RR Bridge and Illinois River Upstream of Morris Water Works were composited monthly and analyzed for gamma emitters. Cs-134 and Cs-137 levels were below the detection limit of 10 pCi/L and all other gamma emitters were below the detection limit of 20 pCi/L in all samples collected during the year.

Similar results were obtained in 1983 through 1995.

Well water samples were collected quarterly beginning October 1980 and analyzed for gross alpha, gross beta, and tritium. The levels of activity detected were generally in the range to be expected in this medium in the environment and were not attributable to station operation.

Levels of gamma radioactivity in fish samples were measured and found in all cases to be below the lower limits of detection of 0.1 pCi/g wet weight for Cs-134 and Cs-137 and less than 0.2 pCi/g wet weight for other gammas. The results were similar to those obtained in 1983 through 1995.

Two sediment samples were analyzed by gamma spectroscopy. The level of Cs-134 and Cs-137 was below the LLD level of 0.2 pCi/g dry weight. Other gamma emitters were below the LLD level of 0.2 pCi/g dry weight.

5.4 Milk

Milk sample locations are shown in Figure 5.0-5. Milk samples were collected weekly during the grazing season (May through October) and monthly during the balance of the year from two required farms: Vince Biros Farm (control location), located about 11.5 miles south southwest; and Halpin's Dairy (control location), located about 16.0 miles south. I-131 was determined for each sample by chemical separation of I-131 and beta counting.

I-131 remained below the detection limits of 5.0 pCi/L during the non-grazing period (November through April) and 0.5 pCi/L during the grazing period (May through October). The results were similar to those obtained during the 1983 - 1995 period except for samples collected during the second and third quarters of 1986. I-131 detected in milk samples during this period is attributable to the nuclear accident at Chernobyl.

5.5 Special Collections

Service water contaminated by leaks in the LPCI heat exchanger was released into the cooling lake early in 1978. To monitor effects on the concentration of radioactivity in the cooling canal, a program of collecting weekly grab samples of water at the Dresden Road and County Line Road crossings of the canal began in October 1978. Concentrations of both gross beta and gamma activities have not indicated the presence of detectable concentrations of radioactivity due to the station. Data tables are available for inspection at the Station or in the Corporate Office.

In June, 1994, elevated tritium levels were discovered in the onsite storm sewers. A special program was initiated to identify, locate, and correct the source or sources of

radioactivity. Numerous wells have been drilled, and sampling and analysis from those wells and the storm sewers continues. Results of the 1996 sampling program are available for inspection at the Station. Separate reports on the Dresden special sampling program are prepared by ComEd and distributed to the NRC and Illinois Department of Nuclear Safety.

5.6 Listing of Missed Samples

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

5.7 Program Modifications

In March of 1996, D-42 (Goodwin Dairy) went out of business. This dairy represented an extra sampling location; replacement was not necessary to meet program requirements.

In June of 1996 during a review of REMP sampling requirements, a discrepancy was identified. For Plant Cooling Water exposure pathway sampling, the "Minimum Number of Samples and Sample Locations" requirements listed "Intake, Discharge." At that time, the U1 and U2/3 discharge canals and the U1 intake canal were sample locations. Up until that point it was believed that the Unit 1 intake sample met the requirement for the "Intake" exposure pathway sample. Due to retirement of systems which used to draw from the intake canal (e.g., service water, circulating water, etc.) the canal is now essentially a dead leg (though there are a few systems which still draw occasionally from the intake canal) and is not necessarily representative of the river water coming into the plant.

To prevent recurrence, REMP sampling requirements for all of the other sample groups were reviewed and no other deficiencies were found. A sample location for the U2/3 intake canal was established and sample collection was initiated. Chapter 11 of the ODCM was revised to include this new sample location.

In reviewing the 1995 Annual Report it was discovered that page 98, Appendix V, was incorrect. A report page used prior to 1992 was inadvertently placed in the 1995 report. The 1995 annual reports for all other stations were then checked; this page was used only in the report for Dresden Station.

6.0 ANALYTICAL PROCEDURES

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

7.0 MILCH ANIMALS AND NEAREST CATTLE CENSUS

Census of milch animals and nearest cattle were conducted within a five mile radius of the station. The survey was conducted by "door-to-door" canvas by A. Lewis on August 20 and 22, 1996. Results of the milch animal and nearest cattle census are presented in Appendix IV.

There are no dairy farms within a five mile radius of the Dresden Nuclear Power Station.

8.0 NEAREST RESIDENCES CENSUS

The nearest resident census was conducted on August 20, 1996. Results of the nearest resident census are presented in Appendix IV.

9.0 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

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1996

GASEOUS EFFLUENTS — Docket Numbers: 50-10/50-237/50-249

SUMMATION OF ALL RELEASES

	TYPE OF RELEASE	UNITS	1st QUARTER	2nd QUARTER	EST. TOTAL ERROR, %
A.	FISSION AND ACTIVATION GASES				
1.	Total Release	Ci	1.30E+01	4.64E+01	7.31+00
2.	Average Release Rate for Period	µCi/sec	1.65E+00	5.90E+00	
3.	Percent of Technical Specification Limit	%	*	*	
B.	IODINES				
1.	Total Iodine-131	Ci	5.64E-04	4.18E-04	2.16E+01
2.	Average Release Rate of I-131 for Period	µCi/sec	7.17E-05	5.31E-05	
3.	Percent of Technical Specification Limit	%	*	*	
4.	Total Iodine-131, Iodine-133, and Iodine-135	Ci	3.81E-03	3.88E-03	
C.	PARTICULATES				
1.	Particulates with half-lives> 8 days	Ci	7.77E-04	9.75E-04	3.41E+01
2.	Average Release Rate for Period	µCi/sec	9.88E-05	1.24E-04	
3.	Percent of Technical Specification Limit	%	*	*	
4.	Gross Alpha Radioactivity	Ci	<LLD	<LLD	
D.	TRITIUM				
1.	Total Release	Ci	1.11E+00	6.02E-01	7.89E+00
2.	Average Release Rate for Period	µCi/sec	1.41E-01	7.65E-02	
3.	Percent of Technical Specification Limit	%	*	*	

* The information is contained in the Radiological Impact on Man section of the report. Total airborne release data is provided which includes fission and activation gases, iodines, particulates, and tritium.

TABLE 1.1-1 (continued)

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
July Through December 1996

GASEOUS EFFLUENTS — Docket Numbers: 50-10/50-237/50-249

SUMMATION OF ALL RELEASES

TYPE OF RELEASE		UNITS	3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %
A.	FISSION AND ACTIVATION GASES				
1.	Total Release	Ci	5.50E-01	5.89E+00	7.31E+00
2.	Average Release Rate for Period	µCi/sec	7.00E-02	7.41E-01	
3.	Percent of Technical Specification Limit	%	*	*	
B.	IODINES				
1.	Total Iodine-131	Ci	2.94E-05	2.87E-04	2.16E+01
2.	Average Release Rate of I-131 for Period	µCi/sec	3.74E-06	3.61E-05	
3.	Percent of Technical Specification Limit	%	*	*	
4.	Total Iodine-131, Iodine-133, and Iodine-135	Ci	3.88E-03	2.98E-03	
C.	PARTICULATES				
1.	Particulates with half-lives > 8 days	Ci	2.74E-04	1.21E-04	3.41E+01
2.	Average Release Rate for Period	µCi/sec	3.48E-05	1.52E-05	
3.	Percent of Technical Specification Limit	%	*	*	
4.	Gross Alpha Radioactivity	Ci	<LLD	<LLD	
D.	TRITIUM				
1.	Total Release	Ci	1.88E-01	7.32E-01	7.89E+00
2.	Average Release Rate for Period	µCi/sec	2.38E-02	9.21E-02	
3.	Percent of Technical Specification Limit	%	*	*	

* The information is contained in the Radiological Impact on Man section of the report. Total airborne release data is provided which includes fission and activation gases, iodines, particulates, and tritium.

TABLE 1.2-1

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1996

LIQUID EFFLUENTS

SUMMATION OF ALL RELEASES Docket Numbers: 50-10/50-237/50-249

		UNITS	1st QUARTER	2nd QUARTER	EST. TOTAL ERROR, %
A.	FISSION AND ACTIVATION PRODUCTS				
1.	Total Release (not including tritium, gases, alpha)	Ci	6.84E-03	7.90E-03	1.06E+01
2.	Average Diluted Conc. During Period	µCi/ml	1.07E-08	1.08E-08	
3.	Percent of Applicable Limit	%	*	*	
B.	TRITIUM				
1.	Total Release	Ci	2.70E+00	4.05E+00	1.14E+01
2.	Average Diluted Conc. During Period	µCi/ml	4.23E-06	5.54E-06	
3.	Percent of Applicable Limit	%	*	*	
C.	DISSOLVED AND ENTRAINED GASES				
1.	Total Release	Ci	8.05E-05	7.26E-05	5.58E+00
2.	Average Diluted Conc. During Period	µCi/ml	1.26E-10	9.94E-11	
3.	Percent of Applicable Limit	%	*	*	
D.	GROSS ALPHA RADIOACTIVITY				
1.	Total Release	Ci	<LLD	<LLD	1.51E+01
E.	VOLUME OF WASTE RELEASED (prior to dilution)	Liters	2.96E+06	3.77E+06	5.00E+00
F.	VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	6.36E+08	7.27E+08	5.00E+00

* The information is contained in the Radiological Impact on Man section of this report. Total liquid release data is provided which includes fission and activation products, tritium, and dissolved and entrained gases.

TABLE 2-1 (continued)

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
July Through December 1996

LIQUID EFFLUENTS

SUMMATION OF ALL RELEASES Docket Numbers: 50-10/50-237/50-249

		UNITS	3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %
A.	FISSION AND ACTIVATION PRODUCTS				
1.	Total Release (not including tritium, gases, alpha)	Ci	7.28E-03	5.50E-03	1.06E+01
2.	Average Diluted Conc. During Period	µCi/ml	1.59E-09	1.64E-08	
3.	Percent of Applicable Limit	%	*	*	
B.	TRITIUM				
1.	Total Release	Ci	2.84E+00	2.57E+00	1.14E+01
2.	Average Diluted Conc. During Period	µCi/ml	6.20E-07	7.65E-06	
3.	Percent of Applicable Limit	%	*	*	
C.	DISSOLVED AND ENTRAINED GASES				
1.	Total Release	Ci	<LLD	<LLD	5.58E+00
2.	Average Diluted Conc. During Period	µCi/ml	<LLD	<LLD	
3.	Percent of Applicable Limit	%	*	*	
D.	GROSS ALPHA RADIOACTIVITY				
1.	Total Release	Ci	<LLD	<LLD	1.51E+01
E.	VOLUME OF WASTE RELEASED (prior to dilution)	Liters	3.94E+06	2.23E+06	5.00E+00
F.	VOLUME OF DILUTION WATER USED DURING PERIOD	Liters	4.58E+09	3.36E+08	5.00E+00

* The information is contained in the Radiological Impact on Man section of this report. Total liquid release data is provided which includes fission and activation products, tritium, and dissolved and entrained gases.

TABLE 2.0-1

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1996

Docket Numbers: 50-10/50-237/50-249

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

1. Type of Waste		Unit	6-month period	Est. Total Error, %
a.	Spent resins, filter sludges, evaporator bottoms, etc.	m^3	6.64E+01	1.24E+01
		Ci	2.19E+02	
b.	Dry compressible waste, contaminated equipment, etc.	m^3	9.91E+02	1.66E+01
		Ci	1.80E-01	
c.	Irradiated components, control rods, etc.	m^3	1.64E+00	2.00E+01
		Ci	2.14E+02	
d.	Other (describe)	m^3	None	
		Ci	None	

2. Estimate of Major Nuclide Composition (by type of waste)

3. Solid Waste Disposition

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
22	Motor Freight (exclusive use only)	CNSI, Barnwell, SC
10	Motor Freight (exclusive use only)	AERC, Oak Ridge, TN
3	Motor Freight (exclusive use only)	Hake, Memphis, TN
2	Motor Freight (exclusive use only)	Manufacturing Sciences Corp.TN
1	Motor Freight (exclusive use only)	SEG, Oak Ridge, TN

B. IRRADIATED FUEL SHIPMENTS (Disposition)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
None		

TABLE 2.0-1 (continued)

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
July Through December 1996

Docket Numbers: 50-10/50-237/50-249

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

1. Type of Waste		Unit	6-month period	Est. Total Error, %
a.	Spent resins, filter sludges, evaporator bottoms, etc.	m^3	4.51E+01	1.24E+01
		Ci	4.33E+02	
b.	Dry compressible waste, contaminated equipment, etc.	m^3	9.91E+02	1.66E+01
		Ci	1.80E-01	
c.	Irradiated components, control rods, etc.	m^3	None	
		Ci	None	
d.	Other: Soil	m^3	6.54E+03	2.00E+01
		Ci	8.04E-01	

2. Estimate of Major Nuclide Composition (by type of waste)

a. Spent resins, filter sludges, evaporator bottoms, etc.

	Percent %	Curies
Co-60	5.80E+01	1.30E+02
Fe-55	8.66E+00	1.94E+01
Mn-54	1.17E+01	2.63E+01
Cs-137	1.92E+01	4.31E+01

b. Dry compressible waste, contaminated equipment, etc.

Co-60	2.42E+01	7.54E-01
Fe-55	5.47E+01	1.70E+00
Mn-54	1.27E+01	3.95E-01
Ni-63	1.40E+00	6.73E-01

c. Other: Soil

Fe-55	8.37E+01	6.73E-01
H-3	5.88E+00	4.73E-02
Pu-241	4.19E+00	3.37E-01
C-14	2.09E+00	2.60E-01
Ni-63	1.71E+00	2.13E-01
Co-60	1.46E+00	1.18E-02

3. Solid Waste Disposition

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
27	Motor Freight(exclusive use only)	CNSI, Barnwell, SC
8	Motor Freight(exclusive use only)	AERC, Oak Ridge, TN
8	Motor Freight(exclusive use only)	Hake, Memphis, TN
1	Motor Freight(exclusive use only)	SEG, Oak Ridge, TN
256	Rail Shipment	Envirocare, Clive, UT

B. IRRADIATED FUEL SHIPMENTS (Disposition)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
None		

TABLE 2.1-1

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1996

ABNORMAL RELEASES *

A.	LIQUID		
	1.	Number of Releases:	3
	2.	Total Activity Releases:	3.56E+01 Ci
		TOTAL	3
B.	GASEOUS		
	1.	Number of Releases:	4
	2.	Total Activity Releases:	5.78E-04 Ci
		TOTAL	4

A.1 In June, 1994, elevated tritium levels were discovered in the on-site storm sewers. The highest storm drain concentration, 9.04+02 pCi/l, from the 4th quarter was used for the first half of 1996. The total activity released is based on an estimated typical discharge flow of 10 gallons per minute. No other isotopes were found in the samples. Various storm sewer locations on-site are now periodically analyzed for tritium. The total release for the 1st and 2nd quarter of the year is 1.49E-04 pCi.

A.2 The May 1996 U3 Service Water grab sample had a concentration of 3.51E-07 µCi/l for Fe-55. In order to calculate the total activity released for the month, it is assumed that the concentration existed for the entire month and the Service Water had a flow of 60,000gpm. Based on the two aforementioned assumptions, the total activity released would be 3.56 Ci of Fe-55.

A.3 During D2R14, samples of debris from the U2 main condenser tube-cleaning evolution were found to be isotopically contaminated. The highest results from the isotopics were:

Mn-54	7.40E-02 pCi/g wet
Co-60	1.77E+00 pCi/g wet
Cs-137	3.01E-01 pCi/g wet

It was estimated that approximately 7,000 to 10,000 pounds of debris were in the U2 main condenser. When circulating was first utilized following the cleaning, it is assumed that all of the debris was removed from the condenser in the circulating water. An estimate of the activity released through the circulating water is:

Mn-54	3.36E-01 µCi
Co-60	8.05E+00 µCi
Cs-137	1.37E+00 µCi
TOTAL	9.76E+00 µCi

* These releases are not included in the Liquid Effluents Summation of all Releases Tables

TABLE 2.1-1 (continued)

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
January Through June 1996

ABNORMAL RELEASES *

B.1 On 15 May 1996 the U3 isolation condenser was utilized. Due to residual amounts of anthropogenic radioactivity present in the system, an estimated 447 µCi of Co-60 was released into the environment.

B.2 During the demolition of tanks in the U1 Radwaste yard in the second quarter of 1996 an estimated 3.61E+00 µCi of Cs-137 and 6.78E-01 µCi of Co-60 was released into the atmosphere.

B.3 The East Turbine Building Ventilation System was found to have a contaminated fan blade. This system is designed to pull air in from outdoors and ventilate non-Radiologically Posted Areas and then exhaust the air back into the environment. It is unknown when the fan blade became contaminated. Smears of the ductwork indicate the presence of Co-60 and Cs-137. An estimated 2.5E+00 µCi of Co-60 and Cs-137 may have been exhausted into the environment.

B.4 The heating steam system has low level contamination present. During operation of the system, some steam is vented directly into the environment. Based on a steam concentration of 2.20E-08 µCi/gm, there would have been an estimated release of 1.25E-04 Ci of anthropogenic radionuclides (mainly Co-60 and Cs-137) into the environment for the first half of 1996.

* These releases are not included in the Effluents Summation of all Releases Tables.

TABLE 2.1-1 (continued)

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
July Through December 1996

ABNORMAL RELEASES *

A.	LIQUID		
	1.	Number of Releases:	6
	2.	Total Activity Releases:	1.25E+02 Ci
		TOTAL	6
B.	GASEOUS		
	1.	Number of Releases:	2
	2.	Total Activity Releases:	3.21E-05 Ci
		TOTAL	2

A.1 In June, 1994, elevated tritium levels were discovered in the on-site storm sewers. The highest storm drain concentration, 9.04E+02 pCi/l, was used for both the third and fourth quarters of 1996 (no data from the 3rd quarter). The total activity released is based on an estimated typical discharge flow of 10 gallons per minute and the highest tritium level for the fourth quarter. No other isotopes were found in the samples. Various storm sewer locations on-site are now periodically analyzed for tritium. The total release for the 3rd and 4th quarter of the year is 1.51E-04 Ci.

A.2 The July 1996 U2 Service Water grab sample had a concentration of 1.58E-07 µCi/ml for Fe-55. In order to calculate the total activity released for the month, it is assumed that the concentration existed for the entire month and the Service Water had a flow of 60,000 gpm. Based on the two aforementioned assumptions, the total activity released would be 1.60E+00 Ci of Fe-55.

A.3 The October 1996 U2 Service Water grab sample had a concentration of 9.01E-07 µCi/ml for Fe-55 and 6.63E-07 µCi/ml for H-3. In order to calculate the total activity released for the month, it is assumed that the concentration existed for the entire month and the Service Water had a flow of 60,000 gpm. Based on the two aforementioned assumptions, the total activity released would be 9.13E+00 Ci of Fe-55 and 6.72E+00 Ci of H-3.

A.4 The October 1996 U3 Service Water grab sample had a concentration of 2.19E-06 µCi/ml for Fe-55 and 8.85E-07 µCi/ml for H-3. In order to calculate the total activity released for the month, it is assumed that the concentration existed for the entire month and the Service Water had a flow of 60,000 gpm. Based on the two aforementioned assumptions, the total activity released would be 2.22E+00 Ci of Fe-55 and 8.97E+00 Ci of H-3.

A.4 The November 1996 U2 Service Water grab sample had a concentration of 1.42E-06 µCi/ml for H-3. In order to calculate the total activity released for the month, it is assumed that the concentration existed for the entire month and the Service Water had a flow of 60,000 gpm. Based on the two aforementioned assumptions, the total activity released would be 1.39E+01 Ci of H-3.

A.6 The November 1996 U3 Service Water grab sample had a concentration of 6.90E-06 µCi/ml for Fe-55 and 1.48E-06 µCi/ml for H-3. In order to calculate the total activity released for the month, it is assumed that the concentration existed for the entire month and the Service Water had a flow of 60,000 gpm. Based on the two aforementioned assumptions, the total activity released would be 6.77E+01 Ci of Fe-55 and 1.45E+01 Ci of H-3.

B.1 The East Turbine Building Ventilation System was found to have a contaminated fan blade. This system is designed to pull air in from outdoors and ventilate non-Radiologically Posted Areas and then exhaust the air back into the environment. It is unknown when the fan blade became contaminated. Smears of the ductwork indicate the presence of Co-60 and Cs-137. An estimated 2.5E+00 µCi of Co-60 and Cs-137 may have been exhausted into the environment.

* These release are not included in the Effluents Summation of all Releases Tables.

TABLE 2.1-1 (continued)

DRESDEN NUCLEAR POWER STATION
UNITS 1, 2 AND 3 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
July Through December 1996

ABNORMAL RELEASES *

B.2 The heating system has low level contamination present. During operation of the system, some steam is vented directly into the environment. Based on a steam concentration of 2.20E-08 µCi/gm there would have been an estimated release of 2.96E-05 Ci of anthropogenic radionuclides (mainly Co-60 and Cs-137) into the environment for the second half of 1996.

*These releases are not included in the Effluents Summation of all Releases Tables.

FIGURE 3.1-1

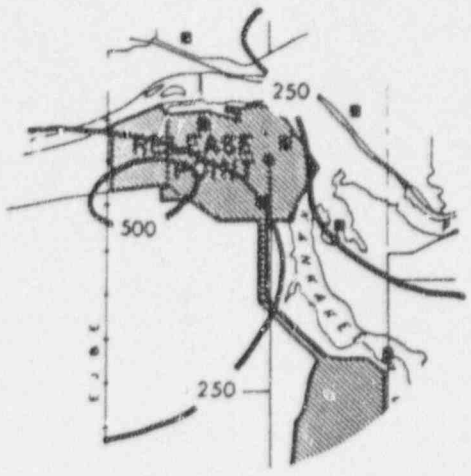
Estimated Cumulative Gamma Dose (in mrem) from the Dresden Station for the period January-December 1996

Isopleth Labels
Small figure - multiply by 10^{-5}
Large figure - multiply by 10^{-6}

FIGURE 3.1-2

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

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



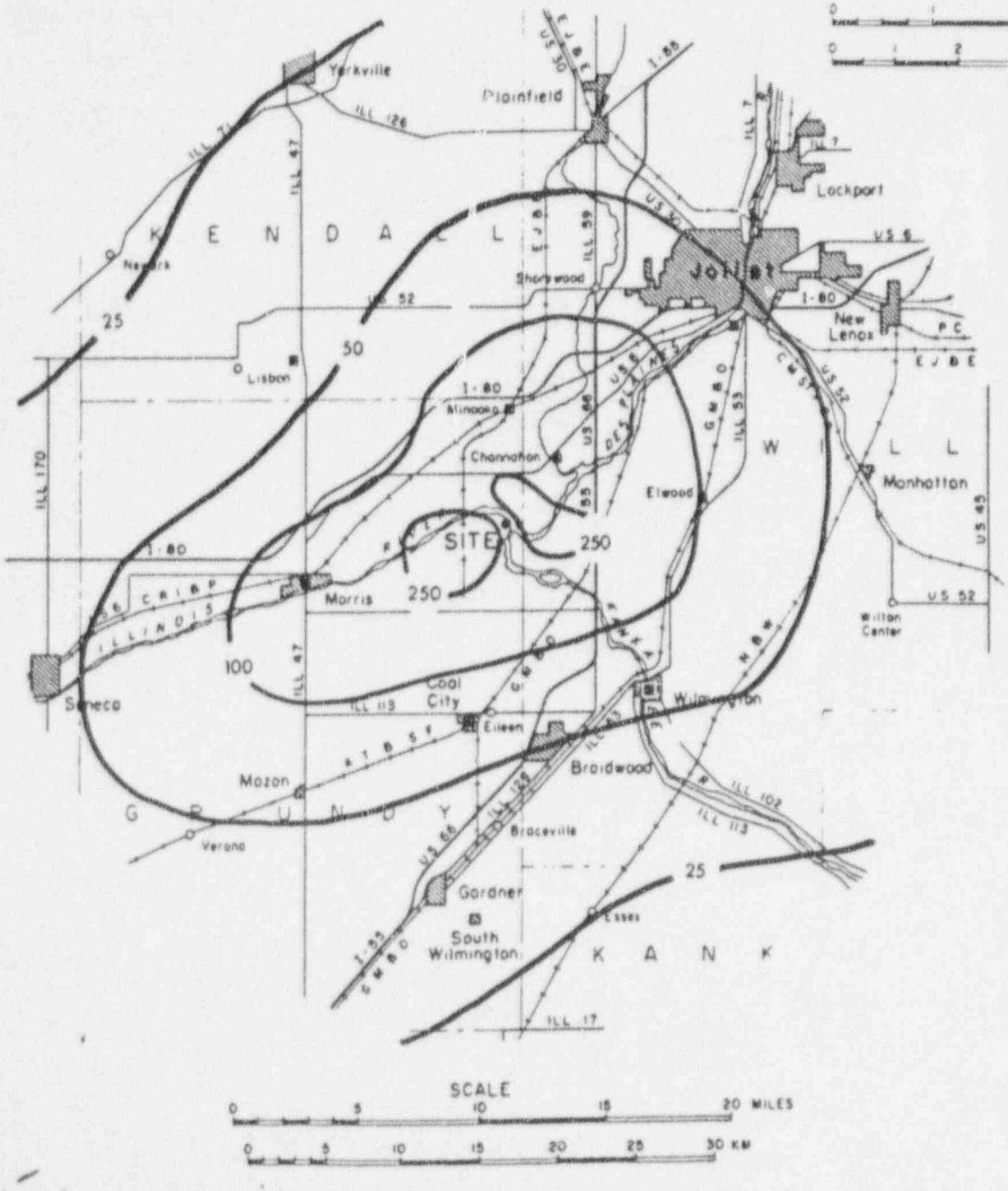


FIGURE 3.1-3

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

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

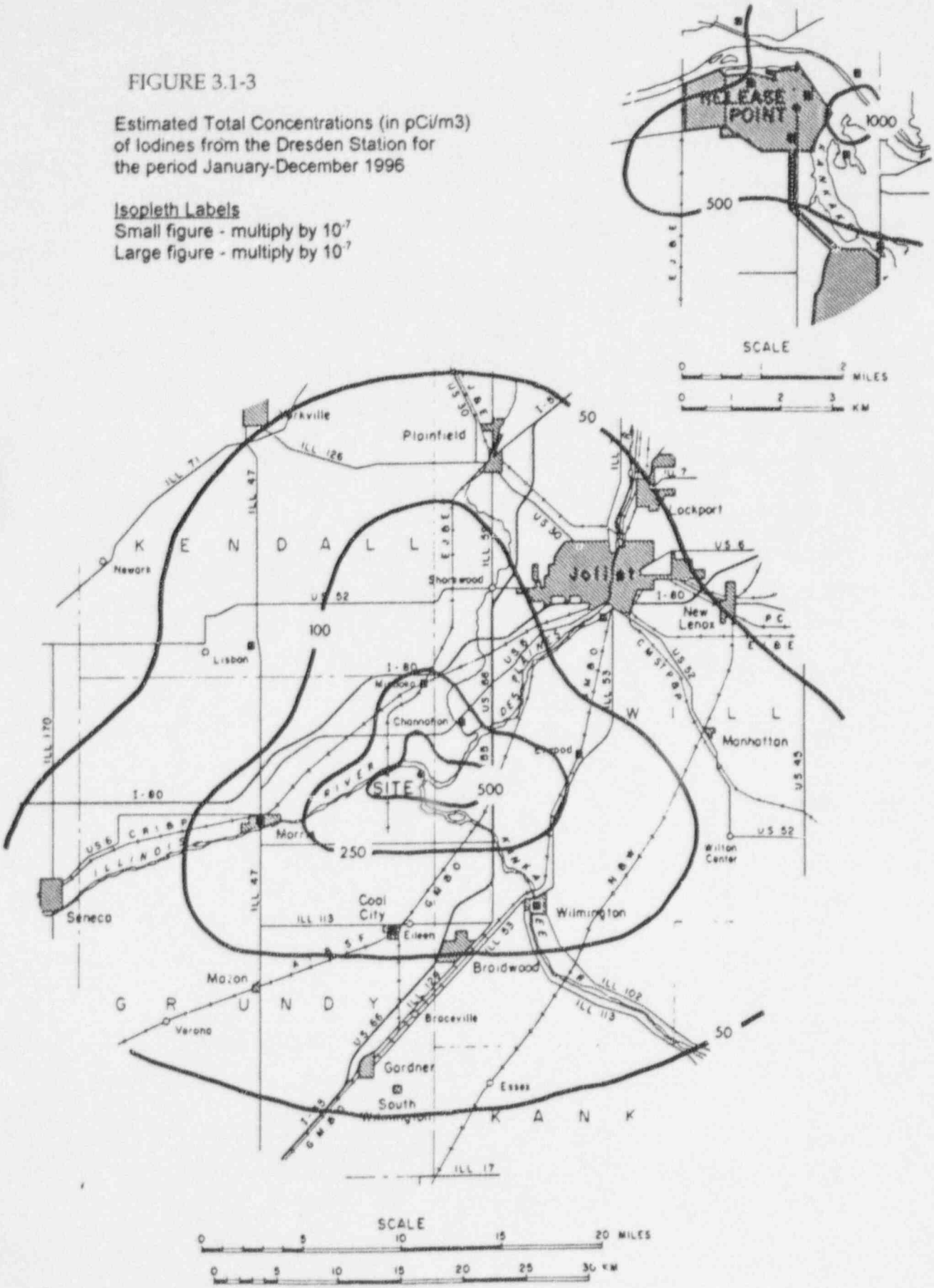


FIGURE 3.1-4

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

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

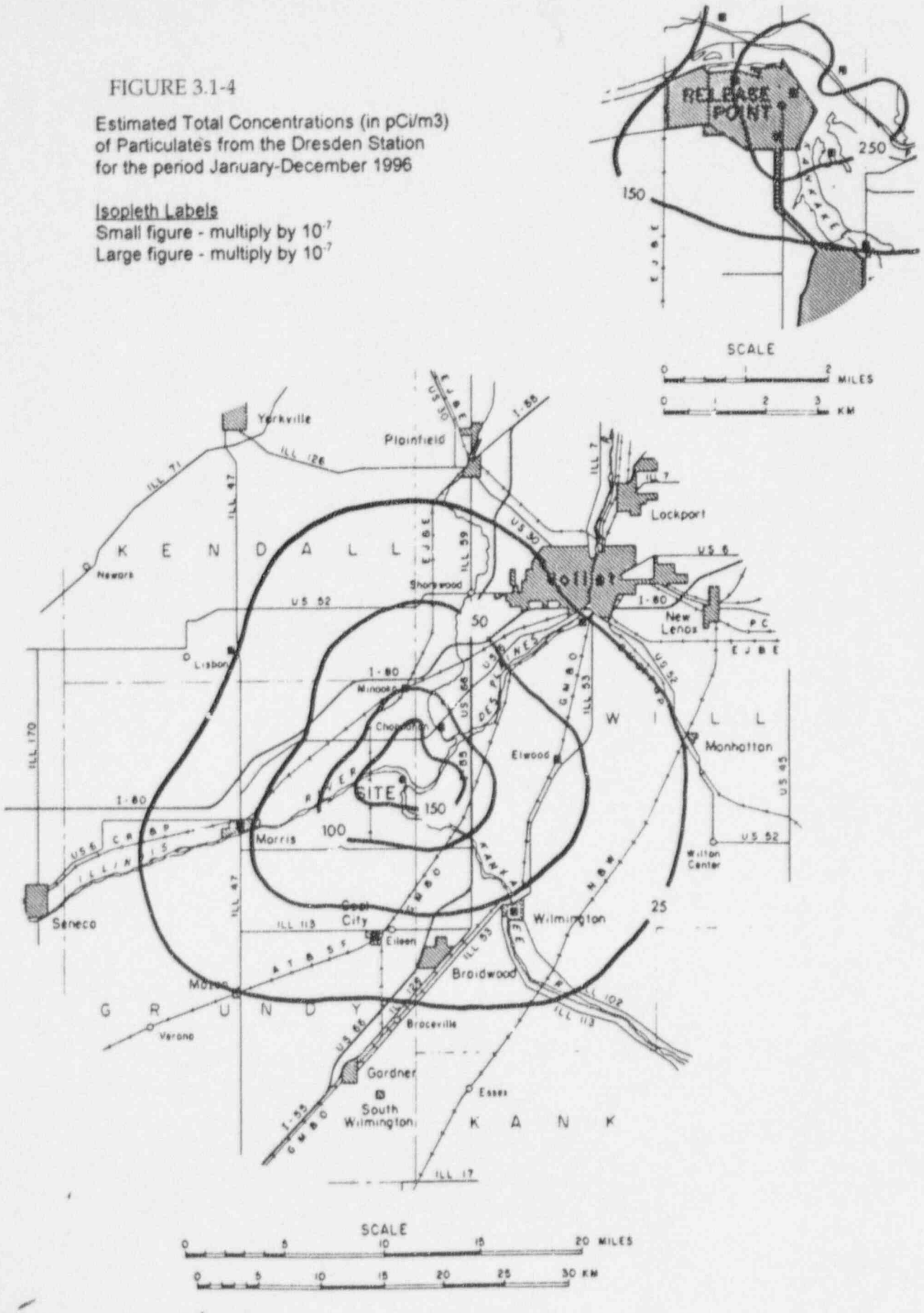


TABLE 3.1-1

DRESDEN STATION UNIT ONE

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MRAD)	( )	( )	( )	( )	( )
BETA AIR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MRAD)	( )	( )	( )	( )	( )
TOT. BODY	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MREM)	( )	( )	( )	( )	( )
SKIN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MREM)	( )	( )	( )	( )	( )
ORGAN	7.03E-05	1.98E-05	2.78E-05	4.94E-05	1.67E-04
(MREM)	(SSE)	(ESE)	(SSE)	(SSE)	(SSE)
	LIVER	LIVER	LIVER	LIVER	LIVER

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	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

DRESDEN STATION UNIT ONE

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MRAD)	( )	( )	( )	( )	( )
BETA AIR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MRAD)	( )	( )	( )	( )	( )
TOT. BODY	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MREM)	( )	( )	( )	( )	( )
SKIN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(MREM)	( )	( )	( )	( )	( )
ORGAN	6.77E-05	2.66E-05	4.02E-05	5.42E-05	1.88E-04
(MREM)	(S)	(SSE)	(SSE)	(SSE)	(SSE)
	LIVER	LIVER	GI_LLI	LIVER	LIVER

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	0.00	15.0	0.00
		LIVER	LIVER	GI_LLI	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

DRESDEN STATION UNIT TWO

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	0.00E+00 ( )	1.25E-07 (N)	2.19E-10 (N)	3.33E-06 (N)	3.45E-06 (N)
BETA AIR (MRAD)	0.00E+00 ( )	2.35E-08 (E)	4.10E-11 (E)	1.84E-07 (E)	2.08E-07 (E)
TOT. BODY (MREM)	0.00E+00 ( )	9.42E-08 (N)	1.65E-10 (N)	2.50E-06 (N)	2.60E-06 (N)
SKIN (MREM)	0.00E+00 ( )	1.15E-07 (N)	2.00E-10 (N)	2.72E-06 (N)	2.83E-06 (N)
ORGAN (MREM)	6.08E-04 (N)	3.33E-04 (N)	5.20E-04 (N)	4.43E-04 (N)	1.83E-03 (N)
	LUNG	THYROID	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI	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	0.01	0.00	0.01	0.01	15.0	0.01
		LUNG	THYROID	LUNG	LIVER THYROID KIDNEY LUNG GI_LLI		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

DRESDEN STATION UNIT TWO

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	0.00E+00 ( )	1.25E-07 (N)	2.19E-10 (N)	3.33E-06 (N)	3.45E-06 (N)
BETA AIR (MRAD)	0.00E+00 ( )	2.35E-08 (E)	4.10E-11 (E)	1.84E-07 (E)	2.08E-07 (E)
TOT. BODY (MREM)	0.00E+00 ( )	9.42E-08 (N)	1.65E-10 (N)	2.50E-06 (N)	2.60E-06 (N)
SKIN (MREM)	0.00E+00 ( )	1.15E-07 (N)	2.00E-10 (N)	2.72E-06 (N)	2.83E-06 (N)
ORGAN (MREM)	6.12E-04 (N)	3.56E-04 (N)	7.63E-04 (N)	1.80E-03 (NW)	3.35E-03 (N)
	LUNG	GI_LLI	GI_LLI	LIVER THYROID KIDNEY 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	0.01	0.00	0.01	0.02	15.0	0.02
		LUNG	GI_LLI	GI_LLI	LIVER THYROID KIDNEY LUNG GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

DRESDEN STATION UNIT THREE

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
INFANT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR (MRAD)	7.95E-05 (N)	7.94E-04 (N)	3.45E-06 (N)	3.46E-05 (N)	9.11E-04 (N)
BETA AIR (MRAD)	1.49E-05 (E)	8.31E-05 (E)	6.44E-07 (E)	6.59E-06 (E)	1.50E-04 (E)
TOT. BODY (MREM)	5.97E-05 (N)	1.41E-03 (WNW)	2.59E-06 (N)	2.60E-05 (N)	1.45E-03 (WNW)
SKIN (MREM)	7.27E-05 (N)	6.85E-04 (N)	3.15E-06 (N)	3.16E-05 (N)	7.92E-04 (N)
ORGAN (MREM)	9.18E-04 (N)	1.37E-03 (SSW)	4.45E-04 (N)	1.01E-03 (N)	3.74E-03 (N)
	LUNG	THYROID	LUNG	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	0.02	0.00	0.00	10.0	0.01
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.06	0.00	0.00	5.0	0.03
SKIN (MREM)	7.5	0.00	0.01	0.00	0.00	15.0	0.01
ORGAN (MREM)	7.5	0.01	0.02	0.01	0.01	15.0	0.02
		LUNG	THYROID	LUNG	THYROID		THYROID

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.1-1 (continued)

DRESDEN STATION UNIT THREE

ACTUAL 1996
MAXIMUM DOSES RESULTING FROM AIRBORNE RELEASES
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
ADULT RECEPTOR

TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
GAMMA AIR	7.95E-05	7.94E-04	3.45E-06	3.46E-05	9.11E-04
(MRAD)	(N)	(N)	(N)	(N)	(N)
BETA AIR	1.49E-05	8.31E-05	6.44E-07	6.59E-06	1.05E-05
(MRAD)	(E)	(E)	(E)	(E)	(E)
TOT. BODY	5.97E-05	1.40E-03	2.59E-06	2.60E-05	1.45E-03
(MREM)	(N)	(WNW)	(N)	(N)	(WNW)
SKIN	7.27E-05	6.85E-04	3.15E-06	3.16E-05	7.92E-04
(MREM)	(N)	(N)	(N)	(N)	(N)
ORGAN	9.29E-04	1.85E-03	5.27E-04	1.92E-03	4.54E-03
(MREM)	(N)	(N)	(N)	(N)	(N)
	LUNG	GI_LLI	GI_LLI	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	0.02	0.00	0.00	10.0	0.01
BETA AIR (MRAD)	10.0	0.00	0.00	0.00	0.00	20.0	0.00
TOT. BODY (MREM)	2.5	0.00	0.06	0.00	0.00	5.0	0.03
SKIN (MREM)	7.5	0.00	0.01	0.00	0.01	15.0	0.01
ORGAN (MREM)	7.5	0.01	0.02	0.01	0.03	15.0	0.03
		LUNG	GI_LLI	GI_LLI	GI_LLI		GI_LLI

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.2-1

DRESDEN STATION UNIT TWO

ACTUAL 1996
MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
ADULT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	7.39E-05	1.08E-04	1.88E-04	1.17E-04	4.87E-04
INTERNAL ORGAN	1.10E-04	1.60E-04	2.85E-04	1.77E-04	7.32E-04
	LIVER				LIVER

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	0.00	0.01	0.01	0.01	3.0	0.02
CRIT. ORGAN(MREM)	5.0	0.00	0.00	0.01	0.00	10.0	0.01
		LIVER					LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.2-1 (continued)

DRESDEN STATION UNIT THREE

ACTUAL 1996
MAXIMUM DOSES (MREM) RESULTING FROM AQUATIC EFFLUENTS
PERIOD OF RELEASE - 01/01/96 TO 12/31/96 CALCULATED 02/20/97
ADULT RECEPTOR

DOSE TYPE	1ST QUARTER JAN-MAR	2ND QUARTER APR-JUN	3RD QUARTER JUL-SEP	4TH QUARTER OCT-DEC	ANNUAL
TOTAL BODY	7.39E-05	1.07E-04	1.91E-04	1.17E-04	4.89E-04
INTERNAL ORGAN	1.10E-04	1.59E-04	2.89E-04	1.77E-04	7.39E-04
	LIVER	LIVER	LIVER	LIVER	LIVER

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	0.00	0.01	0.01	0.01	3.0	0.02
CRIT. ORGAN(MREM)	5.0	0.00	0.00	0.01	0.00	10.0	0.01
		LIVER	LIVER	LIVER	LIVER		LIVER

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1

DRESDEN STATION UNIT ONE

10 CFR 20 COMPLIANCE ASSESSMENT

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

CALCULATED 03/05/97

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

Total Effective Dose Equivalent,	mrem/yr	1.82E-04
10 CFR 20.1301 (a)(1) limit	mrem/yr	100.0
	% of limit	0.00

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	6.93E-05	2.39E-05	3.60E-05	5.27E-05	0.00

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

DRESDEN STATION UNIT ONE

10 CFR 20 COMPLIANCE ASSESSMENT

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

CALCULATED 03/05/97

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

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	0.00E+00		
	Skyshine	0.00E+00		
	Ground	1.49E-04		
	Total	1.49E-04	25.0	0.00
Organ Dose (CDE)	Thyroid	3.07E-05	75.0	0.00
	Gonads	3.25E-05	25.0	0.00
	Breast	3.10E-05	25.0	0.00
	Lung	3.16E-05	25.0	0.00
	Marrow	3.13E-05	25.0	0.00
	Bone	3.08E-05	25.0	0.00
	Remainder	3.49E-05	25.0	0.00
	CEDE	3.27E-05		
	TEDE	1.82E-04	100.0	0.00

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

DRESDEN STATION UNIT TWO

10 CFR 20 COMPLIANCE ASSESSMENT

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

CALCULATED 03/05/97

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

Total Effective Dose Equivalent, mrem/yr		1.18E+00
10 CFR 20.1301 (a)(1) limit	mrem/yr	100.0
	% of limit	1.18

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	6.72E-04	2.89E-02	2.49E-01	8.99E-01	1.18

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

DRESDEN STATION UNIT TWO

10 CFR 20 COMPLIANCE ASSESSMENT

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

CALCULATED 03/05/97

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

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	2.60E-06		
	Skyshine	1.17E+00		
	Ground	1.67E-03		
	Total	1.18E+00	25.0	4.71
Organ Dose (CDE)	Thyroid	9.30E-04	75.0	0.00
	Gonads	9.32E-04	25.0	0.00
	Breast	8.48E-04	25.0	0.00
	Lung	9.01E-04	25.0	0.00
	Marrow	8.79E-04	25.0	0.00
	Bone	8.54E-04	25.0	0.00
	Remainder	1.52E-03	25.0	0.01
	CEDE	1.08E-03		
	TEDE	1.18E+00	100.0	1.18

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

DRESDEN STATION UNIT THREE

10 CFR 20 COMPLIANCE ASSESSMENT

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

CALCULATED 03/05/97

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

Total Effective Dose Equivalent, mrem/yr		3.5?E-01
10 CFR 20.1301 (a)(1) limit	mrem/yr	100.0
	% of limit	0.36

Compliance Summary - 10CFR20

	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	% of Limit
TEDE	1.97E-01	1.02E-01	1.21E-02	4.68E-02	0.36

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

TABLE 3.3-1 (continued)

DRESDEN STATION UNIT THREE

10 CFR 20 COMPLIANCE ASSESSMENT

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

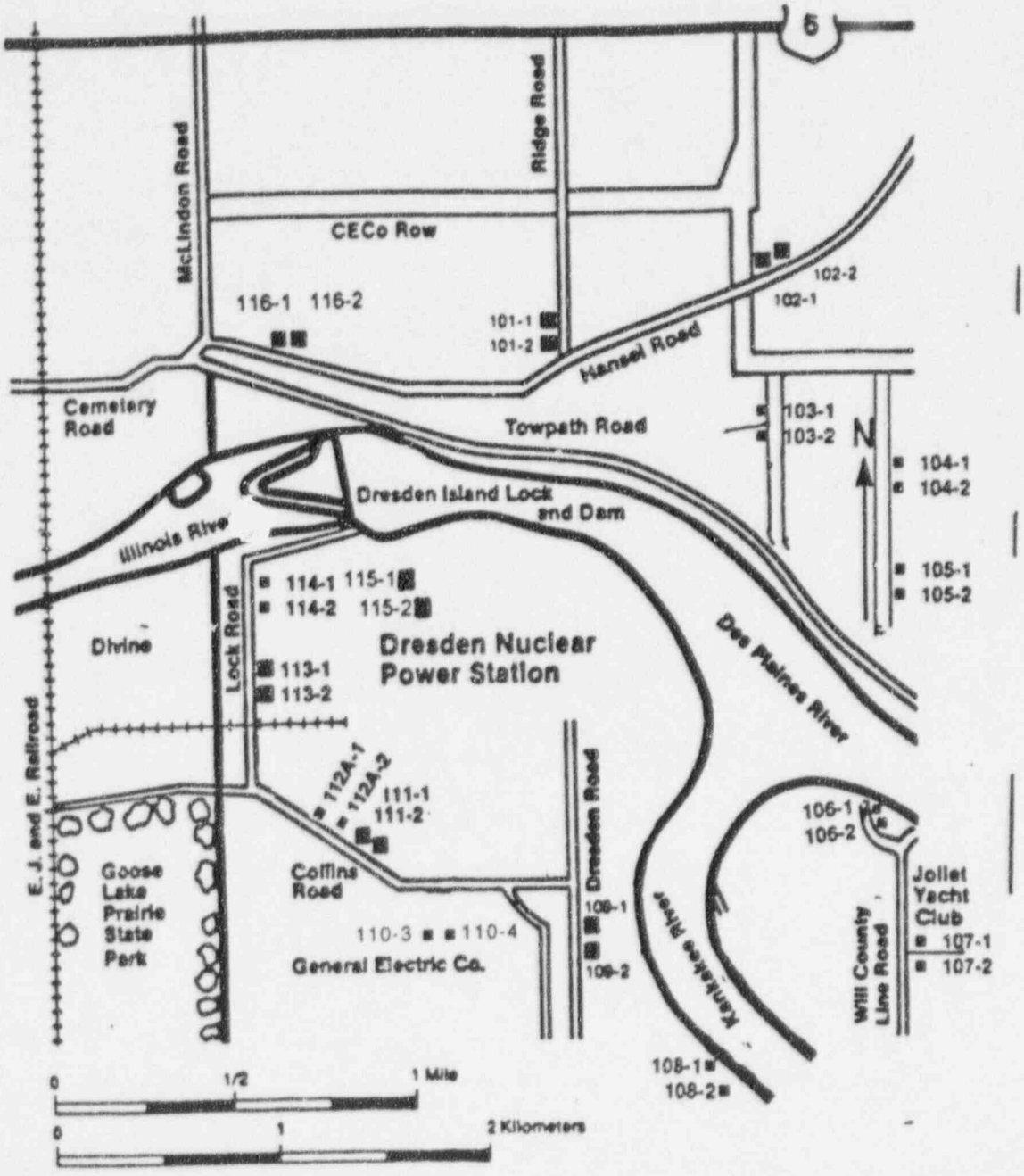
CALCULATED 03/05/97

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

		Dose (mrem)	Limit (mrem)	% of Limit
Whole Body (DDE)	Plume	1.45E-03		
	Skyshine	3.52E-01		
	Ground	2.48E-01		
	Total	3.56E-01	25.0	1.42
Organ Dose (CDE)	Thyroid	2.58E-03	75.0	0.00
	Gonads	1.42E-03	25.0	0.01
	Breast	1.32E-03	25.0	0.01
	Lung	1.38E-03	25.0	0.01
	Marrow	1.35E-03	25.0	0.01
	Bone	1.32E-03	25.0	0.01
	Remainder	1.98E-03	25.0	0.01
	CEDE	1.56E-03		
	TEDE	3.58E-01	100.0	0.36

RESULTS BASED UPON: ODCM ANNEX REVISION 1.1 JULY 1994
ODCM SOFTWARE VERSION 1.1 January 1995
ODCM DATABASE VERSION 1.1 January 1995

FIGURE 5.0-1



■ TLD

DRESDEN STATION UNITS 1,2 & 3
INNER RING TLD LOCATIONS

FIGURE 5.0-2

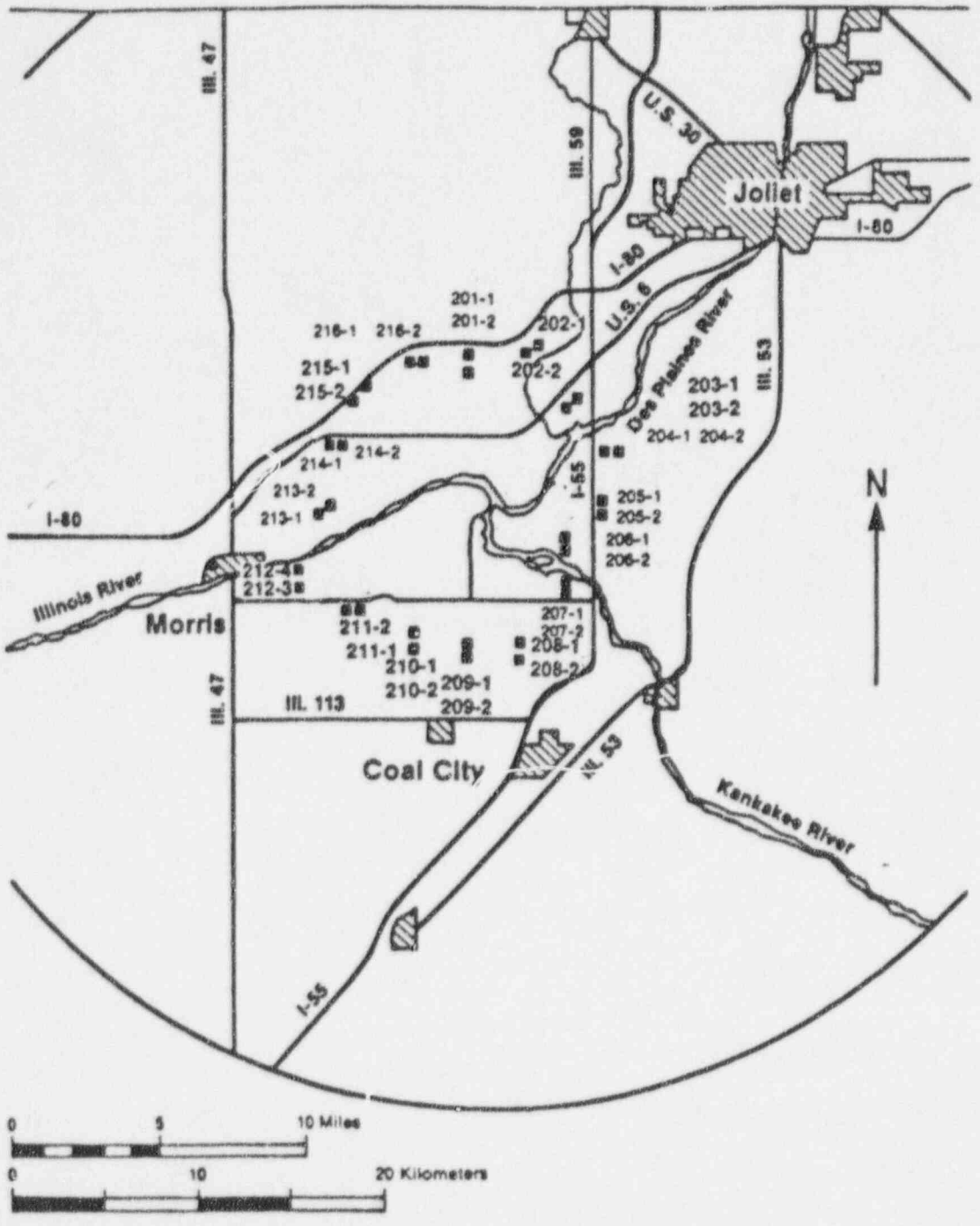
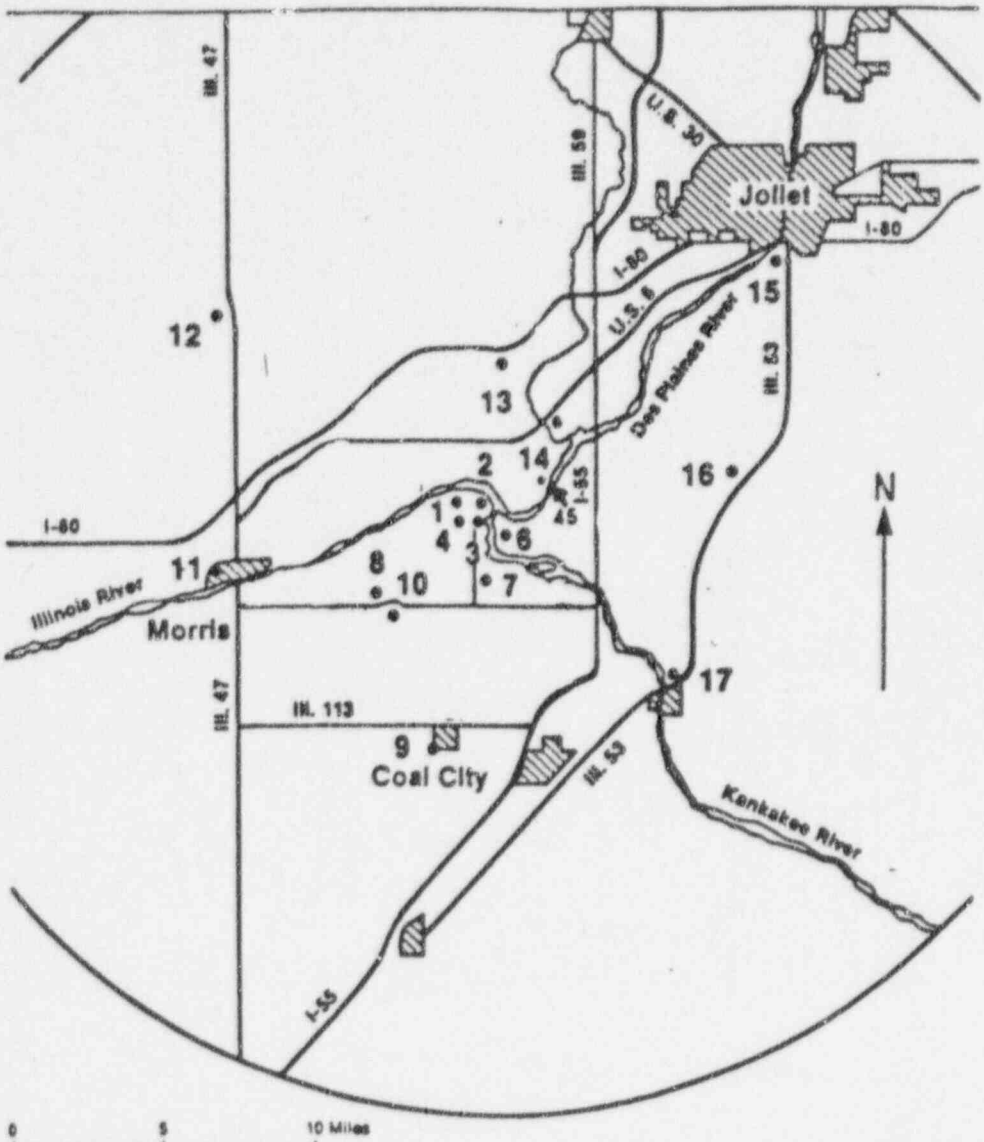

Ill. 47
Ill. 59
U.S. 30
Joliet
I-80
I-80
U.S. 6
Des Plaines River
Ill. 53
201-1
201-2
202-1
202-2
216-1
216-2
215-1
215-2
203-1
203-2
204-1
204-2
214-1
214-2
213-2
213-1
I-55
205-1
205-2
206-1
206-2
I-80
Illinois River
212-4
212-3
Morris
207-1
207-2
211-2
211-1
208-1
208-2
210-1
210-2
209-1
209-2
Ill. 47
Ill. 113
Coal City
Ill. 53
Kankakee River
I-55
N
0
5
10 Miles
0
10
20 Kilometers
• Air Sampling Location
■ TLD Location
DRESDEN STATION
UNITS 1,2 & 3
OUTER RING TLD LOCATIONS

FIGURE 5.0-3

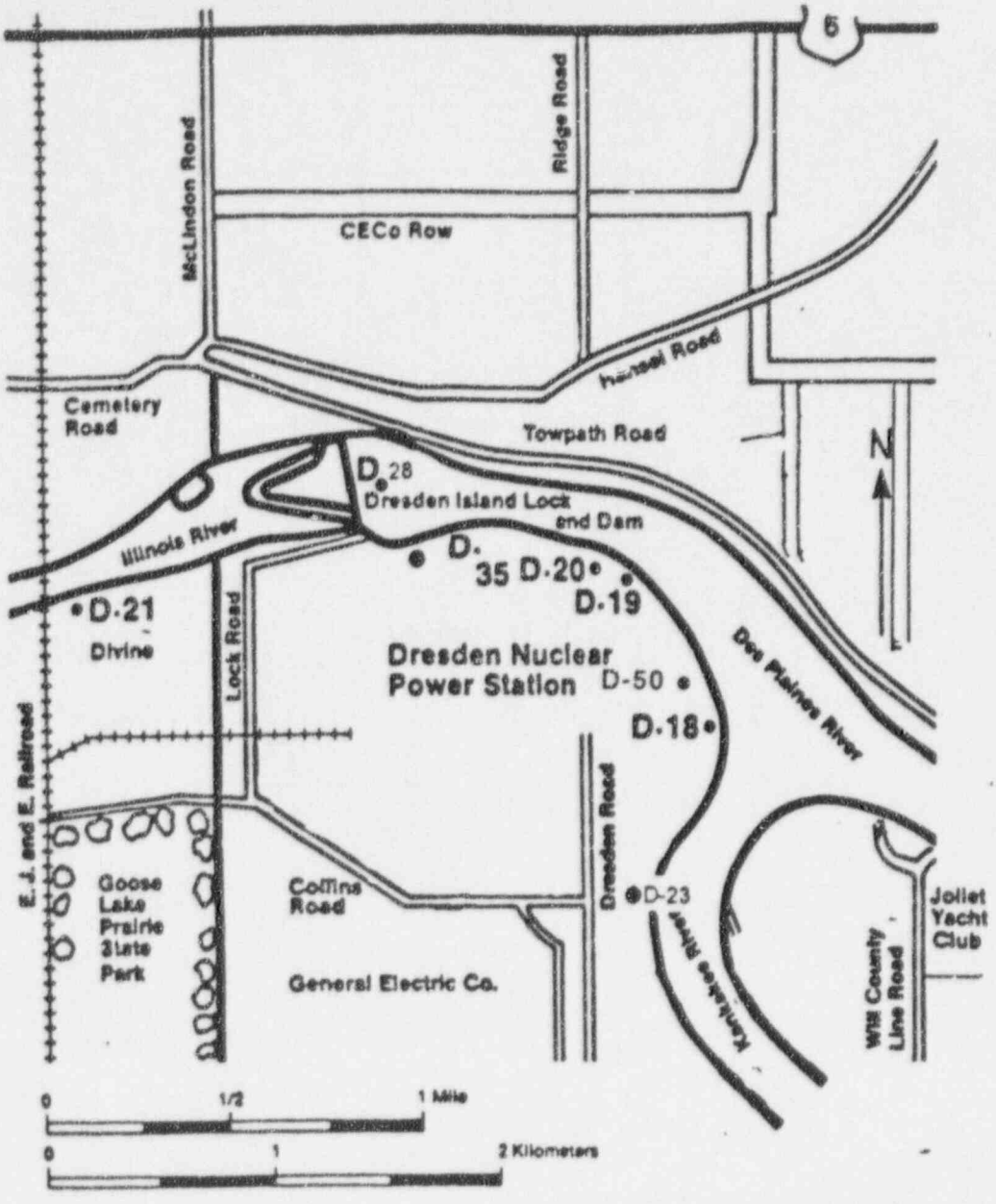


DRESDEN STATION
UNITS 1,2 & 3

FIXED AIR SAMPLING AND TLD SITES

D-01 Onsite Station 1	D-11 Morris
D-02 Onsite Station 2	D-12 Lisbon
D-03 Onsite Station 3	D-13 Minooka
D-04 Collins Road	D-14 Channahon
D-06 Will County Road	D-15 Joliet
D-07 Clay Products	D-16 Elwood
D-08 Prairie Parks	D-17 Wilmington
D-09 Coal City	D-45 McKinley Woods Road
D-10 Goose Lake Village	

FIGURE 5.0-4



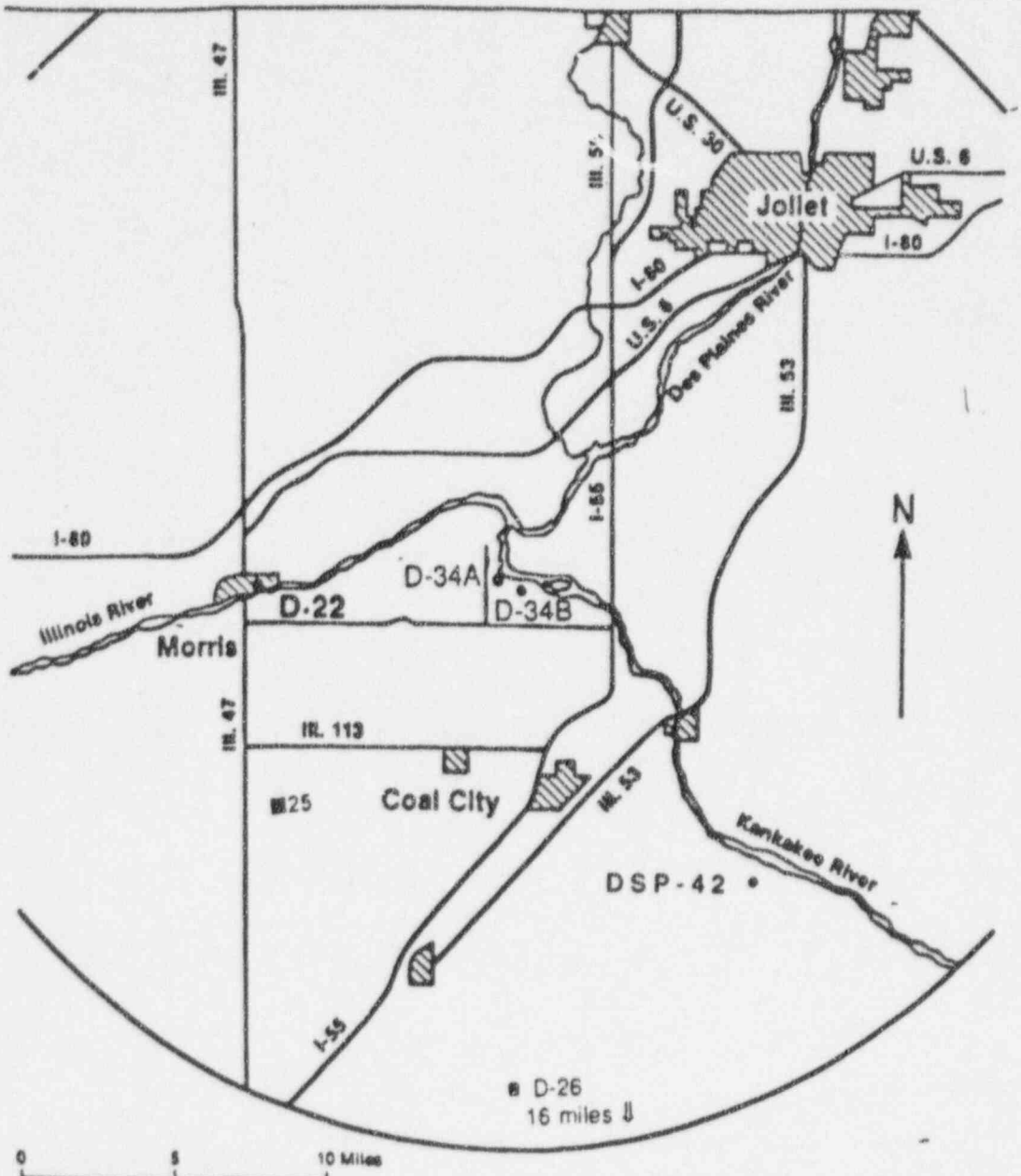
DRESDEN STATION
UNITS 1,2 & 3

NEAR STATION WATER SAMPLE LOCATIONS

● Water

D-18 Inlet Canal
D-19 Discharge - Unit 1
D-20 Discharge - Unit 2/3
D-21 Illinois River at EJ&E RR Bridge
D-23 Thorsen Well
D-28 Dresden Pool at Illinois River
D-35 Dresden Lock & Dam

FIGURE 5.0-5



Milk

Water

DRESDEN STATION
UNITS 1,2 & 3

MILK SAMPLE LOCATIONS AND MORE DISTANT WATER SAMPLE LOCATIONS

D-22 Illinois River at Morris Water Works
D-25 Vine Biros Farm
D-26 Halpin's Dairy
D-34A Cooling Lake - Dresden Road Crossing
D-34B Cooling Lake - County Line Crossing
DSP-42 Goodwin Dairy

TABLE 5.0-1

Dresden Station Radiological Environmental Monitoring Locations	Air Sampling	TLD	Cooling Water	Fish	Lake Water	Milk	Sediments	Surface Water	Ground/Well Water
D-01 Onsite Station 1	0	0	.	.	.	.	.	.	.
D-02 Onsite Station 2	0	0	.	.	.	.	.	.	.
D-03 Onsite Station 3	0	0	.	.	.	.	.	.	.
D-04 Collins Road	0	0	.	.	.	.	.	.	.
D-06 Will County Road	0	0	.	.	.	.	.	.	.
D-07 Clay Products	0	0	.	.	.	.	.	.	.
D-08 Prairie Parks	0	0	.	.	.	.	.	.	.
D-09 Coal City	0	0	.	.	.	.	.	.	.
D-10 Goose Lake Village	0	0	.	.	.	.	.	.	.
D-11 Morris	0	0	.	.	.	.	.	.	.
D-12 Lisbon	0	0	.	.	.	.	.	.	.
D-13 Minooka	0	0	.	.	.	.	.	.	.
D-14 Channahon	0	0	.	.	.	.	.	.	.
D-15 Joliet	0	0	.	.	.	.	.	.	.
D-16 Elwood	0	0	.	.	.	.	.	.	.
D-17 Wilmington	0	0	.	.	.	.	.	.	.
D-18 Inlet Canal	.	.	0	.	.	.	.	.	.
D-19 Discharge - Unit 1	.	.	0	.	.	.	.	.	.
D-20 Discharge - Unit 2/3	.	.	0	.	.	.	.	.	.
D-50 Inlet - Unit 2/3	.	.	0	.	.	.	.	.	.
D-21 Illinois River at EJ&E RR Bridge	.	.	.	.	.	.	.	0	.
D-22 Illinois River Upstream of Morris Water Works	.	.	.	.	.	.	.	0	.
D-23 Thorsen Well	.	.	.	.	.	.	.	.	0
D-25 Vince Biros Farm	.	.	.	.	.	0	.	.	.
D-26 Halpin's Dairy	.	.	.	.	.	0	.	.	.
D-27 Dresden Lock & Dam	.	.	.	.	.	.	0	.	.
D-28 Dresden Pool at Illinois River	.	.	.	0	0	.	.	.	.
D-34A Cooling Lake , Dresden Road Crossing	.	.	.	.	0	.	.	.	.
D-34B Cooling Lake , County Line Crossing	.	.	.	.	0	.	.	.	.
D-35 Dresden Lock & Dam	.	.	.	.	.	.	.	.	0
D-46 DesPlaines River, Upstream	.	.	.	0	.	.	.	.	.
D-45 McKinley Woods Road	0	0	.	.	.	.	.	.	.

CENSUS
Dairy
Residence
Cattle

TABLE 5.0-2

DRESDEN STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

1. AIR SAMPLERS

Site Code[a]	Location	Distance (miles)	Direction (°)
D-01	Onsite Station 1	0.6	309
D-02	Onsite Station 2	0.3	43
D-03	Onsite Station 3	0.4	175
D-04	Collins Road	0.9	260
D-06	Will County Road	1.4	132
D-07	Clay Products	2.0	180
D-08	Prairie Parks	4.0	230
D-09 (C)	Coal City	7.5	190
D-10	Goose Lake Village	3.8	210
D-11 (C)	Morris	8.0	250
D-12 (C)	Lisbon	10.0	310
D-13	Minooka	4.5	5
D-14	Channahon	3.5	40
D-15 (C)	Joliet	12.5	60
D-16 (C)	Elwood	8.0	80
D-17 (C)	Wilmington	8.0	130
D-45	McKinley Woods Road	1.5	70

2. TLDs

a. Same as No. 1.

b. Special TLD Locations

Site Code	Distance (miles)	Direction (°)
Inner Ring		
D-101-1,2	1.0	4
D-102-1,2	1.3	25
D-103-1,2	1.2	44
D-104-1,2	1.5	67
D-105-1,2	1.4	90
D-106-1,2	0.9	105
D-107-1,2	1.3	128
D-108-1,2	1.9	157
D-109-1,2	0.8	175
D-110-3,4	0.8	203
D-111-1,2	0.6	225

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

TABLE 5.0-2 (continued)

DRESDEN STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

2. TLDs

b. Special TLD Locations (continued)

Site Code	Distance (miles)	Direction (°)
Inner Ring (continued)		
D-112a-1,2	0.8	240
D-113-1,2	0.9	277
D-114-1,2	1.0	292
D-115-1,2	0.8	309
D-116-1,2	1.0	341
Outer Ring		
D-201-1,2	4.5	0
D-202-1,2	5.0	20
D-203-1,2	4.5	42
D-204-1,2	5.0	65
D-205-1,2	4.2	90
D-206-1,2	3.5	118
D-207-1,2	4.5	135
D-208-1,2	5.0	156
D-209-1,2	5.0	180
D-210-1,2	4.8	200
D-211-1,2	5.0	225
D-212-3,4	6.0	239
D-213-1,2	4.5	260
D-214-1,2	4.5	290
D-215-1,2	5.1	310
D-216-1,2	4.8	340

3. MILK

Site Code[a]	Location	Distance (miles)	Direction (°)
D-25 (C)	Vince Biros Farm	11.5	206
D-26 (C)	Halpin's Dairy	16.0	175
DSP-42 (C)[b]	Goodwin Dairy	12.8	135

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

[b] Goodwin Dairy went out of business in March of 1996.

TABLE 5.0-2 (continued)

DRESDEN STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

4. GROUND/WELL WATER

Site Code	Location	Distance (miles)	Direction (°)
D-23	Thorsen Well	0.7	180
D-35	Dresden Lock & Dam	0.5	304

5. SURFACE WATER

Site Code	Location	Distance (miles)	Direction (°)
D-21	Illinois River at EJ & E Railroad Bridge	1.0	285
D-22	Illinois River Upstream of Morris Water Works	8.0	254

6. LAKE WATER

Site Code	Location	Distance (miles)	Direction (°)
D-28	Dresden Pool at Illinois River	0.5	310
D-34A	Cooling Lake, Dresden Road Crossing	2.6	180
D-34B	Cooling Lake, County Line Crossing	3.0	160

7. COOLING WATER

Site Code	Location	Distance (miles)	Direction (°)
D-18	Inlet, Unit 1	At Station	0
D-19	Discharge, Unit 1	At Station	0
D-20	Discharge, Unit 2/3	At Station	0
D-50[a]	Inlet, Unit 2/3	At Station	0

[a] Location added to REMP in July of 1996.

TABLE 5.0-2 (continued)

DRESDEN STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLING LOCATIONS

8. FISH

Site Code	Location	Distance (miles)	Direction (°)
D-28	Dresden Pool of Illinois River	0.5	310
DSP-46(C)	DesPlaines River, Upstream		

9. SHORELINE SEDIMENTS

Site Code	Location	Distance (miles)	Direction (°)
D-27	Dresden Lock & Dam	0.5	304

TABLE 5.0-2 (continued)

DRESDEN 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
1.	Airborne Particulates	Onsite and Near Field		Continuous operation for a week	Gross Beta	Weekly	On all onsite and near field samples.
					Filter exchange	Weekly	
		D-1	Onsite 1		Gamma Isot.	Quarterly	
		D-2	Onsite 2		Gamma Isot.	Weekly	Gamma isotopic if gross beta in a sample exceeds 5X the average concentration of the preceding calendar quarter for the sample location.
		D-3	Onsite 3				
		D-4	Collins Road				
		D-6	Will County Road				
		D-45	McKinley Woods Road				
		Far Field					
		D-7	Clay Products				
		D-8	Prairie Parks				
		D-9 (C)	Coal City				
		D-10	Goose Lake Village				
		D-11 (C)	Morris				
		D-12 (C)	Lisbon				
		D-13	Minooka				
		D-14	Channahon				
		D-15 (C)	Joliet				
		D-16 (C)	Elwood				
		D-17 (C)	Wilmington				
2.	Airborne Iodine	Same as 1.		Continuous operation for two weeks	I-131	Biweekly	On all onsite and near field samples.
3.	Air Sampling Train	Same as 1.		–	Test and Maintenance	Weekly	On all samplers.
4.	TLD	a. Same as 1.		Quarterly	Gamma	Quarterly	Two sets of TLD's at all air sampler locations. All sets read Quarterly.
		b. D-101-1,2	Inner Ring	Quarterly	Gamma	Quarterly	All sets read Quarterly.
		102-1,2					
		103-1,2					
		104-1,2					
		105-1,2					
		106-1,2					

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

TABLE 5.0-2 (continued)

DRESDEN 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
4.	TLD (continued)	5. D-107-1,2 108-1,2 109-1,2 110-3,4 111-1,2 112a-1,2 113-1,2 114-1,2 115-1,2 116-1,2					
		201-1,2 202-1,2 203-1,2 204-1,2 205-1,2 206-1,2 207-1,2 208-1,2 209-1,2 210-1,2 211-1,2 212-3,4 213-1,2 214-1,2 215-1,2 216-1,2	Outer Ring	Quarterly	Gamma	Quarterly	All sets read Quarterly.
5.	Milk	D-25 (C) D-26 (C) DSP-42 (C)[b]	Vince Biros Farm Halpin's Farm Goodwin Dairy	Weekly: May through October	I-131	Weekly	On all samples: L.D: 0.5 pCi/L (Grazing Season).
				Monthly: November Through April	I-131	Monthly	On all samples: LLD: 5 pCi/L.

[a] Control (reference) locations are denoted by a "C" after site code. All other locations are indicators.
[b] Goodwin Dairy went out of business in March of 1996. No replacement dairy found.

TABLE 5.0-2 (continued)

DRESDEN STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

Sample Media	Location Code	Location Site	Collection Frequency	Type of Analysis	Frequency of Analysis	Remarks
6. Ground/Well Water	D-35	Dresden Lock & Dam	Quarterly	Gross Alpha	Quarterly	On all samples.
	D-23	Thorsen Well		Gross Beta	Quarterly	On all samples.
				Tritium	Quarterly	On all samples.
7. Surface Water	D-21	Illinois River at EJ&E Railroad Bridge	Weekly	Gamma Isot.	Monthly	On monthly composite of weekly samples.
	D-22	Illinois River Upstream of Morris Water Works	Weekly	Gamma Isot.	Monthly	On monthly composite of weekly samples.
8. Lake Water	D-28	Dresden Pool at Illinois River	Weekly	Gross Beta	Weekly	On all samples.
				Gamma Isot.	Weekly	On all samples.
	D-34A	Cooling Lake, Dresden Road Crossing				
	D-34B	Cooling Lake, County Line Crossing				
9. Cooling Water	D-18	Inlet, Unit 1	Weekly	Gross Beta	Weekly	On all samples.
	D-19	Discharge, Unit 1				
	D-20	Discharge, Unit 2/3				
	D-50[a]	Inlet, Unit 2/3				
10. Fish	D-28	Dresden Pool of Illinois River	Semiannually	Gamma Isot.	Semiannually	On edible portions only.
	D-46(C)	DesPlaines River, Upstream				
11. Shoreline Sediments	D-27	Dresden Lock & Dam	Annually	Gamma Isot.	Annually	

[a] Location added to REMP in July of 1996.

TABLE 5.0-2 (continued)

DRESDEN STATION

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM, SAMPLE COLLECTION AND ANALYSES

Sample Media	Location Code	Location Site	Collection Frequency	Type of Analysis	Frequency of Analysis	Remarks
12. 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.
	b.	2 miles to 5 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 5 miles				Annually	

TABLE 5.0-3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, 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		Control Locations Mean[a] Range	Number of Non-routine Results
					Location	Mean Range		
Air Particulates (pCi/m^3)	Gross Beta	78	0.01	0.024 (77/78) (0.010-0.040)	D-04, Colllins Road 0.9 mi @ 260°	0.026 (13/13) (0.017-0.040)	None	0
	Gamma Spec.	6						
	Cs-134		0.01	<LLD	-	-	None	0
	Cs-137		0.01	<LLD	-	-	None	0
Airborne Iodine (pCi/m^3)	I-131	36	0.10	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	98	9.7	14.2 (86/86) (11.0-18.5)	D-111-1 0.6 mi @ 225°	18.5 (1/1)	12.3 (12/12) (11.8-13.3)	0
Milk (pCi/L)	I-131	9	5	None	-	-	<LLD	0
Cooling Water (pCi/L)	Gross Beta	39	5	6.5 (7/26) (5.6-9.5)	D-19, Discharge, Unit 1, at Station	4.4(13/13) (2.3-6.3)	5.2 (1/13)	0
Surface Water (pCi/L)	Gamma Spec.	6						
	Cs-134		10	<LLD	-	-	None	0
	Cs-137		10	<LLD	-	-	None	0
	Other Gammas		20	<LLD	-	-	None	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 Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249

Location of Fa... Grundy, Illinois Reporting Period 1st Quarter 1986
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean Location	Mean Range	Control Locations Mean[a] Range	Number of Non-routine Results
Lake Water (pCi/L)	Gamma Spec.	39						
	Cs-134		10	<LLD	-	-	None	0
	Cs-137		10	<LLD	-	-	None	0
	Other Gammas		20	<LLD	-	-	None	0
	Gross Beta	39	5	6.5 (12/39) (5.3-8.2)	D-28 Dresden Pool of Illinois River 0.5 mi @ 270°	7.4 (13/13)	None	0
Well Water (pCi/L)	Gross Beta	2	5	14.4 (2/2) (5.6-23.1)	D-35 Dresden Lock and Dam, 0.5 mi @ 308°	23.1 (1/1)	None	0
	Gross Alpha	2	4	6.1 (1/1)	D-35 Dresden Lock and Dam, 0.5 mi @ 308°	6.1 (1/1)	None	0
	Tritium	2	200	<LLD	-	-	None	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 Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, 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	78	0.01	0.016 (75/78) (0.010-0.023)	[b] D-01, Onsite Station, 0.6 mi @ 309°	0.016 (13/13) (0.010-0.020)	None	0
	Gamma Spec.	6	0.01	<LLD	-	-	None	0
Airborne Iodine (pCi/m^3)	I-131	42	0.10	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	98	9.7	13.65(86/86) (10.6 -18.0)	D-111-1, 0.6 mi @ 225°	18.0 (1/1)	11.5 (12/12) (10.8 -12.3)	0
Milk (pCi/L)	I-131	20	5/0.5[c]	None	-	-	<LLD	0
Cooling Water (pCi/L)	Gross Beta	39	5	5.5 (4/26) (5.1 - 6.1)	D-19, Discharge, Unit 1 at Station	3.6 (13/13) (2.1-6.1)	<LLD	0
Surface Water (pCi/L)	Gamma Spec.	6						
	Cs-134		10	<LLD	-	-	None	0
	Cs-137		10	<LLD	-	-	None	0
	Other Gammas		20	<LLD	-	-	None	0

[a] Mean and range based on detectable measurements only. Fractions indicated in parentheses.
[b] Locations D-02, D-06 and D-45 had identical means of 0.016 pCi/m^3. Only D-01 is detailed in this summary.
[c] November - April LLD=5.0 pCi/L, May - October LLD=0.5 pCi/L.

TABLE 5.0-4 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, 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
Lake Water (pCi/L)	Gamma Spec. 39						
	Cs-134	10	<LLD	-	-	None	0
	Cs-137	10	<LLD	-	-	None	0
	Other Gammas	20	<LLD	-	-	None	0
	Gross Beta 39	5	5.8 (4/39) (5.0 - 6.9)	D-28 Dresden Pool of Illinois River, 0.5 mi @ 270°	4.4(13/13) (2.3 - 6.9)	None	0
Well Water (pCi/L)	Gross Beta 2	5	15.5 (1/2)	D-3 Dresden Lock and Dam, 0.5 mi @ 308°	15.5(1/1)	None	0
	Gross Alpha 2	4	<LLD	-	-	None	0
	Tritium 2	200	229 (1/2)	D-23 Thorsen Well, 0.7 mi @ 180°	229 (1/1)	None	0
Fish (pCi/g wet)	Gamma Spec. 10						
	Cs-134	0.1	<LLD	-	-	<LLD	0
	Cs-137	0.1	<LLD	-	-	<LLD	0
	Other Gammas	0.2	<LLD	-	-	<LLD	0
Bottom Sediments (pCi/g dry)	Gamma Spec. 1						
	Cs-134	0.2	<LLD	-	-	None	0
	Cs-137	0.2	<LLD	-	-	None	0
	Other Gammas	0.2	<LLD	-	-	None	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 Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, Illinois Reporting Period 3rdQuarter 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	78	0.01	0.024 (78/78) (0.012-0.061)	D-06, Will County Road, 1.4 mi @ 132°	0.026(13/13) (0.017-0.061)	None	0
	Gamma Spec.	6	0.01	<LLD	-	-	None	0
Airborne Iodine (pCi/m^3)	I-131	36	0.10	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	98	9.7	14.6(86/86) (11.11-19.6)	D-111-1 0.6 mi @ 225°	19.6 (1/1)	12.3 (12/12) (11.7-13.7)	0
Milk (pCi/L)	I-131	26	0.5	None	-	-	<LLD	0
Cooling Water (pCi/L)	Gross Beta	52	5	5.6 (4/26) (5.3-6.2)	D-19 Discharge, Unit 1 at Station	4.3(13/13) (2.7-6.2)	7.7(5/26) (5.0-16.2)	0
Surface Water (pCi/L)	Gamma Spec.	6						
	Cs-134		10	<LLD	-	-	None	0
	Cs-137		10	<LLD	-	-	None	0
	Other Gammas		20	<LLD	-	-	None	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 Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, Illinois Reporting Period 3rdQuarter 1996
(County, State)

Sample Type (Units)	Type and Number of Analyses		LLD	Indicator Locations Mean[a] Range	Location with Highest Quarterly Mean		Control Locations Mean[a] Range	Number of Non-routine Results
					Location	Mean Range		
Lake Water (pCi/L)	Gamma Spec.	39						
	Cs-134		10	<LLD	-	-	None	0
	Cs-137		10	<LLD	-	-	None	0
	Other Gammas		20	<LLD	-	-	None	0
	Gross Beta	39	5	6.1 (12/39) (5.1-6.8)	D-28 Dresden Pool at Illinois River, 0.5 mi @ 270°	5.5(13/13) (3.6-6.5)	None	0
Well Water (pCi/L)	Gross Beta	2	5	16.5(1/2)	D-35 Dresden Lock and Dam, 0.5 mi @ 308°	16.5 (1/1)	None	0
	Gross Alpha	2	4	<LLD	-	-	None	0
	Tritium	2	200	236(1/2)	D-23 Thorsen Well, 0.7 mi @ 180°	236 (1/1)	None	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 Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, 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		Control Locations Mean[a] Range	Number of Non-routine Results
					Location	Mean Range		
Air Particulates (pCi/m^3)	Gross Beta	78	0.01	0.024 (78/78) (0.014-0.035)	D-03[b], Onsite Station 3 0.4 mi @ 175°	0.025 (13/13) (0.015-0.029)	None	0
	Gamma Spec.	6	0.01	<LLD	-	-	None	0
Airborne Iodine (pCi/m^3)	I-131	42	0.10	<LLD	-	-	None	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose	98	9.7	14.4 (86/86) (11.3-19.6)	D-111-1, 0.6 mi @ 225°	18.1 (1/1)	11.6(12/12) (10.7-12.8)	0
Milk (pCi/L)	I-131	12	5.0/0.5[c]	None	-	-	<LLD	0
Cooling Water (pCi/L)	Gross Beta	52	5	6.2 (4/26) (5.5-6.9)	D-19, Discharge, Unit 1, at station	4.2 (13/13) (2.4-6.9)	6.0(7/26) (5.2-8.3)	0
Surface Water (pCi/L)	Gamma Spec.	6						
	Cs-134		10	<LLD	-	-	None	0
	Cs-137		10	<LLD	-	-	None	0
	Other Gammas		20	<LLD	-	-	None	0

[a] Mean and range based on detectable measurements only. Fractions indicated in parentheses.
[b] Locations D-03, D-04, and D-06 had identical means of 0.025 pCi/m^3. Only D-03 is detailed in this summary.
[c] November - April LLD=5.0 pCi/L; May - October LLD=0.5 pCi/L.

TABLE 5.0-6 (continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Dresden Nuclear Power Station Docket No. 50-10, 50-237, 50-249
Location of Facility Grundy, 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		Control Locations Mean[a] Range	Number of Nonroutine Results
				Location	Mean Range		
Lake Water (pCi/L)	Gamma Spec. 39						
	Cs-134	10	<LLD	-	-	None	0
	Cs-137	10	<LLD	-	-	None	0
	Other Gammas	20	<LLD	-	-	None	0
	Gross Beta 39	5	5.8 (31/39) (5.1-6.9)	D-28 Dresden Pool at Illinois River, 0.5 mi @ 270°	5.4 (13/13) (3.4-6.9)	None	0
Well Water (pCi/L)	Gross Beta 2	5	16.0 (1/2)	D-35 Dresden Lock and Dam, 0.5 mi @ 308°	16.0 (1/1)	None	0
	Gross Alpha 2	4	5.9(1/2)	D-35 Dresden Lock and Dam, 0.5 mi @ 308°	5.9(1/1)	None	0
	Tritium 2	200	262 (1/2)	D-23 Thorsen Well, 0.7 mi @ 180°	262 (1/1)	None	0
Fish (pCi/g wet)	Gamma Spec. 10						
	Cs-134	0.1	<LLD	-	-	<LLD	0
	Cs-137	0.1	<LLD	-	-	<LLD	0
	Other Gammas	0.2	<LLD	-	-	<LLD	0
Bottom Sediments (pCi/g dry)	Gamma Spec. 1						
	Cs-134	0.2	<LLD	-	-	None	0
	Cs-137	0.2	<LLD	-	-	None	0
	Other Gammas	0.2	<LLD	-	-	None	0

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

TABLE 5.1-1
GAMMA RADIATION AS MEASURED BY THERMOLUMINESCENT DOSIMETERS (TLDs)

Commonwealth Edison Company

Date: 3-MAR-97 | Environmental Site Report for Dresden | Page: 1

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)					
D-01	ONSITE STATION 1	14.6	14.1	14.7	14.1
D-02	ONSITE STATION 2	12.9	12.5 #	13.4	12.8
D-03	ONSITE STATION 3	11.9	11.4	12.2	11.8
D-04	COLLINS ROAD	14.1	13.6	15.0	13.9
D-06	WILL COUNTY ROAD	13.4	13.2	14.3	13.0
D-07	CLAY PRODUCTS	13.2	12.8	13.5	13.1
D-08	PRAIRIE PARKS	14.2	13.8	15.1	13.9
D-10	GOOSE LAKE VILLAGE	14.0	13.9	14.6	13.9
D-13	MINOOKA	12.7	12.4	13.2	12.3
D-14	CHANNAHON	13.3	12.5	14.1	13.1
D-45	MCKINLEY WOODS ROAD	15.7	15.3	16.1	15.8
	Air Sampler Mean ± S.D.	13.6 ± 1.0	13.2 ± 1.0	14.2 ± 1.1	13.4 ± 1.1
	Annual Air Sampler Mean ± S.D.				13.6 ± 1.1
b. Inner Ring (100 Series)					
D-101-1		14.7	14.6	16.3	14.8
D-101-2		13.8	14.0	14.8	13.9
D-102-1		15.1	15.1	15.7	15.2
D-102-2		15.8	15.1	16.4	15.2
D-103-1		12.9	12.5	13.7	12.8
D-103-2		13.1	12.5	13.6	12.7
D-104-1		15.2	14.5	15.9	14.8
D-104-2		15.5	15.1	16.7	15.0
D-105-1		13.9	14.7	15.4	14.9
D-105-2		13.7	13.6	15.3	13.8
D-106-1		13.1	12.2	14.0	12.9
D-106-2		11.3	10.7	11.8	11.4
D-107-1		12.0	11.8	11.8	11.7
D-107-2		12.1	11.2	13.7	11.7
D-108-1		14.9	14.9	15.5	15.3
D-108-2		13.6	13.4	13.8	13.2
D-109-1		14.9	14.3	15.5	14.7
D-109-2		13.2	13.8	15.5	14.3
D-110-3		16.9	16.3	18.0	16.8
D-110-4		16.5	15.8	18.0	16.9
D-111-1		18.5	18.0	19.6	18.1
D-111-2		16.3	16.6	17.2	15.5

TABLE 5.1-1 (continued)
GAMMA RADIATION AS MEASURED BY THERMOLUMINESCENT DOSIMETERS (TLDs)

Date: 3-MAR-97 Environmental Site Report for Dresden Page: 2

Site	Description	Quarter 1 1996	Quarter 2 1996	Quarter 3 1996	Quarter 4 1996
b. Inner Ring (100 Series)					
D-112A-1		12.5	12.2	13.8	13.5
D-112A-2		13.8	12.9	14.7	13.6
D-113-1		12.7	11.6	12.8	12.3
D-113-2		13.4	12.9	14.4	13.3
D-114-1		12.4	11.8	12.8	12.2
D-114-2		13.5	12.1	13.5	12.6
D-115-1		13.6	13.3	14.2	13.1
D-115-2		14.7	14.4	15.7	14.3
D-116-1		15.5	14.7	14.8	14.4
D-116-2		16.3	14.9	16.2	16.1
	Inner Ring Mean ± S.D.	14.2 ± 1.6	13.8 ± 1.7	15.0 ± 1.8	14.1 ± 1.6
	Annual Inner Ring Mean ± S.D.				14.3 ± 1.7
c. Outer Ring (200 Series)					
D-201-1		16.9	16.4	17.2	17.1
D-201-2		17.7	16.5	17.9	17.2
D-202-1		15.6	15.4 *	14.2	13.9
D-202-2		14.6	13.5	14.7	14.9
D-203-1		12.5	12.1	12.8	11.5
D-203-2		14.5	14.2	14.4	14.1
D-204-1		14.9	13.1	15.4	14.7
D-204-2		13.7	12.6	13.3	12.9
D-205-1		14.5	13.8	14.2	13.6
D-205-2		15.1	13.8	15.8	14.7
D-206-1		14.2	13.2	14.0	12.9
D-206-2		13.9	13.7	14.5	13.3
D-207-1		12.8	12.1	13.0	12.1
D-207-2		12.8	12.6	13.7	11.8
D-208-1		11.6	11.0	12.4	11.3
D-208-2		12.0	11.0	11.6	10.7
D-209-1		11.8	10.6	11.9	10.4
D-209-2		11.0	11.4	11.5	10.3
D-210-1		14.0	12.4	13.8	13.3
D-210-2		15.0	13.9	14.9	13.7
D-211-1		14.5	13.8	15.9	14.0
D-211-2		14.2	15.0	15.5	14.1
D-212-3		12.3	11.4	12.9	12.0
D-212-4		12.5	11.4	11.8	11.6
D-213-1		11.4	10.9	12.0	11.2
D-213-2		12.2	11.4	12.6	11.1
D-214-1		16.4	15.4	17.4	16.7
D-214-2		16.6	16.0	16.6	15.8
D-215-1		17.1	16.1	16.2	15.7
D-215-2		16.1	14.9	15.8	14.9
D-216-1		17.5	15.5	17.1	16.2
D-216-2		16.4	16.3	17.3 *	16.7
	Outer Ring Mean ± S.D.	14.3 ± 1.9	13.5 ± 1.9	14.4 ± 1.9	13.6 ± 2.1
	Annual Outer Ring Mean ± S.D.				13.9 ± 2.0

TABLE 5.1-1 (continued)
GAMMA RADIATION AS MEASURED BY THERMOLUMINSCENT DOSIMETERS (TLDs)

Site	Description	Quarter 1 1996	Quarter 2 1996	Quarter 3 1996	Quarter 4 1996
c. Outer Ring (200 Series)					
	INDICATOR LOCATION MEAN ± S.D.	14.2 ± 1.7	13.6 ± 1.7	14.7 ± 1.8	13.9 ± 1.8
	Annual INDICATOR LOCATION MEAN ± S.D.				14.0 ± 1.8
II. CONTROL LOCATIONS (2 TLDs per location)					
D-09	COAL CITY	11.9	10.8	11.7	10.7
D-11	MORRIS	11.8	11.1	11.7	11.0
D-12	LISBON	12.1	11.9	12.4	12.0
D-15	JOLIET	13.3	12.3	13.7	12.8
D-16	ELWOOD	12.1	11.5	12.1	12.0
D-17	WILMINGTON	12.5	11.4	12.2	11.1
	CONTROL LOCATION Mean ± S.D.	12.3 ± 0.5	11.5 ± 0.5	12.3 ± 0.7	11.6 ± 0.8
	Annual CONTROL LOCATION Mean ± S.D.				11.9 ± 0.7
III. SPECIAL INTEREST LOCATIONS (1 TLD per location)					
D-306-1		15.6	16.1	16.0	17.1 *
D-306-2		15.0	15.2	15.9	16.1 *
D-306-3		15.8	15.8	16.3	16.7 *
D-310-1		17.3	15.3	15.3	16.2 *
D-313-1		14.5	15.3 *	14.3	14.9 *
D-313-2		13.9	13.2	14.5	14.0 *
D-316-1	DAW STORAGE	18.0 *	8.4	15.7 *	-
	SPECIAL INTEREST LOCATION Mean ± S.D.	15.7 ± 1.5	14.2 ± 2.7	15.4 ± 0.8	15.8 ± 1.2
	Annual SPECIAL INTEREST LOCATION Mean ± S.D.				15.3 ± 1.7

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

APPENDIX II

METEOROLOGICAL DATA

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	0	0	3	3
NNE	0	0	0	0	0	0	0
NE	0	0	2	0	0	0	2
ENE	0	1	0	0	0	0	1
E	0	0	1	2	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	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	3	4	1	8
NW	0	0	0	2	4	0	6
NNW	0	0	0	4	0	0	4
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	1	4	11	8	4	28

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	1	1	0	3	5
NNE	0	0	0	0	0	0	0
NE	0	0	2	0	0	0	2
ENE	0	1	1	0	0	0	2
E	0	0	3	1	0	0	4
ESE	0	0	2	2	0	0	4
SE	0	0	4	2	0	0	6
SSE	0	0	0	0	0	0	0
S	0	0	1	7	0	0	8
SSW	0	0	1	0	0	2	3
SW	0	0	0	0	0	1	1
WSW	0	1	1	4	0	0	6
W	0	0	0	4	3	5	12
WNW	0	1	4	8	3	0	16
NW	0	0	3	6	1	0	10
NNW	0	2	1	4	3	0	10
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	5	24	39	10	11	89

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	2	1	2	1	6
NNE	0	0	1	1	0	0	2
NE	0	2	2	0	0	0	4
ENE	0	0	2	0	0	0	2
E	0	0	3	0	0	0	3
ESE	0	0	3	0	0	0	3
SE	0	1	2	2	1	2	8
SSE	0	0	0	2	0	0	2
S	0	0	8	7	0	1	16
SSW	0	0	2	3	3	2	10
SW	0	0	2	0	0	0	2
WSW	0	0	1	3	0	1	5
W	0	1	7	1	5	6	20
WNW	0	1	4	1	8	6	20
NW	0	0	1	4	1	0	6
NNW	0	1	3	7	4	0	15
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	6	43	32	24	19	124

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stabilit[illegible]: 2
Hours of missing stability measurements in all sta[illegible] classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - NEUTRAL (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	5	12	22	24	16	79
NNE	0	5	8	20	13	10	56
NE	1	16	14	16	25	10	82
ENE	0	14	24	0	0	0	38
E	0	0	14	8	0	0	22
ESE	1	2	8	11	0	0	22
SE	2	8	11	12	22	2	57
SSE	1	2	14	22	9	8	56
S	1	1	21	22	12	12	69
SSW	1	4	9	22	17	6	59
SW	0	0	3	19	14	12	48
WSW	1	4	8	10	6	9	38
W	2	6	22	25	26	40	121
WNW	1	3	26	32	26	40	128
NW	1	6	27	42	13	6	95
NNW	1	6	21	44	19	10	101
VARIABLE	0	0	0	0	0	0	0
TOTAL	13	82	242	327	226	181	1071

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 35
Hours of missing stability measurements in all stability classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	4	22	19	3	48
NNE	0	0	15	15	11	2	43
NE	1	9	14	5	1	0	30
ENE	1	9	13	1	0	0	24
E	0	2	12	12	1	0	27
ESE	0	2	0	18	11	0	31
SE	0	4	2	8	10	2	26
SSE	2	3	5	24	3	17	54
S	0	2	9	49	21	16	97
SSW	1	6	17	33	14	3	74
SW	0	2	5	18	12	0	37
WSW	0	0	4	15	2	1	22
W	0	1	4	9	6	6	26
WNW	0	2	4	17	7	0	30
NW	0	5	15	15	2	0	37
NNW	0	0	7	21	12	4	44
VARIABLE	0	0	0	0	0	0	0
TOTAL	5	47	130	282	132	54	650

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 20
Hours of missing stability measurements in all stability classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	2	5	10	4	0	21
NNE	0	0	2	5	0	0	7
NE	0	1	1	0	0	0	2
ENE	0	1	2	0	0	0	3
E	0	4	0	0	0	0	4
ESE	0	1	1	2	2	0	6
SE	0	0	0	2	0	0	2
SSE	0	0	0	6	0	0	6
S	0	0	0	6	2	0	8
SSW	0	0	0	4	3	0	7
SW	0	1	3	12	6	0	22
WSW	0	0	6	9	0	0	15
W	0	0	4	1	1	0	6
WNW	0	0	3	4	0	0	7
NW	1	0	2	5	0	0	8
NNW	0	2	6	5	1	0	14
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	12	35	71	19	0	138

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JANUARY-MARCH 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

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

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	2	7	0	0	9
NNE	0	0	11	1	0	0	12
NE	0	0	3	3	0	0	6
ENE	0	5	0	0	0	0	5
E	0	6	1	5	2	0	14
ESE	0	0	1	2	0	0	3
SE	0	2	0	0	0	0	2
SSE	0	0	0	1	0	0	1
S	0	0	0	0	1	3	4
SSW	0	0	1	1	1	2	5
SW	0	0	0	0	1	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	1	1
WNW	0	0	0	2	0	1	3
NW	0	0	1	3	0	0	4
NNW	0	0	1	1	1	0	3
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	13	21	26	6	7	73

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	1	6	8	0	0	15
NNE	0	0	4	1	0	0	5
NE	0	0	6	3	0	0	9
ENE	0	4	4	0	0	0	8
E	0	4	0	3	1	0	8
ESE	0	3	2	1	1	0	7
SE	0	0	0	1	0	0	1
SSE	0	0	3	2	2	0	7
S	0	0	1	2	0	3	6
SSW	0	1	3	1	4	2	11
SW	0	2	2	0	4	1	9
WSW	0	0	0	1	1	0	2
W	0	0	1	2	1	0	4
WNW	0	0	3	5	0	5	13
NW	0	0	3	4	1	0	8
NNW	0	0	4	2	1	0	7
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	15	42	36	16	11	120

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND SPEED (in mph)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	5	2	4	0	0	11
NNE	0	3	4	1	0	0	8
NE	0	5	2	2	0	0	9
ENE	0	4	6	0	0	0	10
E	0	3	4	0	0	0	7
ESE	0	2	0	0	1	0	3
SE	0	5	1	1	0	0	7
SSE	0	3	4	2	1	0	10
S	0	0	3	3	2	2	10
SSW	0	1	3	3	0	2	9
SW	0	3	2	2	4	3	14
WSW	0	2	3	4	2	0	11
W	0	2	3	9	1	0	15
WNW	0	3	6	5	1	4	19
NW	0	3	10	3	4	0	20
NNW	0	1	1	2	2	0	6
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	45	54	41	18	11	169

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - NEUTRAL (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND SPEED (in mph)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	7	11	13	10	0	41
NNE	1	11	10	21	16	0	59
NE	1	10	17	33	0	0	61
ENE	1	20	45	18	1	0	85
E	0	15	20	27	15	0	77
ESE	1	8	3	6	3	0	21
SE	0	8	8	8	10	0	34
SSE	0	3	7	7	9	2	28
S	1	3	8	8	10	4	34
SSW	0	2	12	12	7	15	48
SW	0	5	10	14	9	10	48
WSW	0	6	26	9	7	4	52
W	2	5	22	14	8	5	56
WNW	3	7	16	29	12	4	71
NW	1	4	13	9	10	2	39
NNW	1	4	4	13	6	1	29
VARIABLE	0	0	0	0	0	0	0
TOTAL	12	118	232	241	133	47	783

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 25
Hours of missing stability measurements in all stability classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	1	8	9	5	0	23
NNE	1	7	16	23	3	1	51
NE	0	9	21	17	2	0	49
ENE	5	24	33	21	1	0	84
E	1	9	25	30	8	0	73
ESE	1	5	14	12	0	0	32
SE	0	0	19	24	1	0	44
SSE	0	2	15	13	11	4	45
S	0	2	11	13	18	14	58
SSW	2	2	1	28	16	15	64
SW	3	4	12	13	22	13	67
WSW	0	4	18	21	17	6	66
W	1	1	10	7	6	0	25
WNW	0	7	14	20	3	1	45
NW	0	3	5	6	1	0	15
NNW	0	0	3	2	4	0	9
VARIABLE	0	0	0	0	0	0	0
TOTAL	14	80	225	259	118	54	750

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 27
Hours of missing stability measurements in all stability classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	1	1	2	1	4	0	9
NNE	0	0	1	0	0	0	1
NE	0	1	1	1	0	0	3
ENE	0	2	1	0	0	0	3
E	0	0	2	3	0	0	5
ESE	2	2	3	9	1	0	17
SE	0	1	3	5	0	0	9
SSE	1	1	2	9	0	0	13
S	0	2	0	5	0	0	7
SSW	0	2	1	3	8	0	14
SW	2	5	8	9	5	0	29
WSW	2	0	10	3	3	0	18
W	2	6	11	6	0	0	25
WNW	0	2	9	6	0	0	17
NW	1	2	2	1	0	0	6
NNW	0	0	1	3	0	0	4
VARIABLE	0	0	0	0	0	0	0
TOTAL	11	27	57	64	21	0	180

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 7
Hours of missing stability measurements in all stability classes: 0

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: APRIL-JUNE 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	1	1	0	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	1	0	0	0	1
ESE	0	0	0	0	2	0	2
SE	0	1	0	1	0	0	2
SSE	0	0	0	3	0	0	3
S	0	1	1	1	0	0	3
SSW	0	0	0	0	2	0	2
SW	0	1	2	1	3	0	7
WSW	0	1	7	1	0	0	9
W	0	0	0	11	0	0	11
WNW	0	0	0	1	0	0	1
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	2	5	11	19	7	0	44

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	5	6	0	0	0	11
NNE	0	5	5	7	4	0	21
NE	0	4	6	3	2	0	15
ENE	0	1	4	0	0	0	5
E	0	5	8	2	0	0	15
ESE	0	6	2	0	0	0	8
SE	0	7	9	0	0	0	16
SSE	0	0	3	0	0	0	3
S	0	1	3	0	0	0	4
SSW	0	1	1	2	1	0	5
SW	0	0	2	1	0	0	3
WSW	0	1	4	0	0	0	5
W	0	0	0	3	0	0	3
WNW	0	1	1	5	2	1	10
NW	0	0	1	7	1	0	9
NNW	0	0	1	11	0	0	12
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	37	56	41	10	1	145

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	5	1	3	0	0	9
NNE	0	6	1	2	1	0	10
NE	0	4	3	1	1	0	9
ENE	0	5	1	1	0	0	7
E	0	3	1	0	0	0	4
ESE	0	4	3	0	0	0	7
SE	0	7	6	0	0	0	13
SSE	1	3	0	0	1	0	5
S	0	1	4	1	0	0	6
SSW	0	1	2	6	0	0	9
SW	0	3	3	3	2	0	11
WSW	0	7	2	2	1	0	12
W	0	1	2	4	0	0	7
WNW	1	0	2	9	3	0	15
NW	1	2	8	7	0	0	18
NNW	0	1	3	1	0	0	5
VARIABLE	0	0	0	0	0	0	0
TOTAL	3	53	42	40	9	0	147

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	2	6	5	0	0	13
NNE	1	4	1	1	0	0	7
NE	0	6	1	1	0	0	8
ENE	0	3	3	0	0	0	6
E	1	3	0	2	0	0	6
ESE	0	3	0	0	0	0	3
SE	0	3	2	0	0	0	5
SSE	0	2	1	0	1	0	4
S	2	2	4	7	1	0	16
SSW	1	4	5	2	2	0	14
SW	1	3	3	6	1	0	14
WSW	0	10	5	1	1	0	17
W	0	4	4	3	0	0	11
WNW	1	4	19	4	1	0	29
NW	0	1	5	7	1	0	14
NNW	0	2	3	4	3	0	12
VARIABLE	0	0	0	0	0	0	0
TOTAL	7	56	62	43	11	0	179

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - NEUTRAL (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	3	6	5	6	0	0	20
NNE	1	5	2	7	2	0	17
NE	1	11	8	8	1	0	29
ENE	4	19	17	4	0	0	44
E	2	3	14	4	2	0	25
ESE	2	8	6	1	6	0	23
SE	1	12	8	0	1	0	22
SSE	1	17	12	10	0	0	40
S	2	7	7	4	5	0	25
SSW	3	6	11	7	2	0	29
SW	3	10	9	11	3	0	36
WSW	2	10	10	9	0	0	31
W	3	14	13	20	3	0	53
WNW	4	9	19	11	1	0	44
NW	3	11	16	14	4	0	48
NNW	4	8	16	15	4	0	47
VARIABLE	0	0	0	0	0	0	0
TOTAL	39	156	173	131	34	0	533

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	1	8	12	10	8	0	39
NNE	2	6	13	12	0	0	33
NE	2	9	13	6	0	0	30
ENE	4	16	24	3	0	0	47
E	1	10	25	17	1	0	54
ESE	1	6	13	24	3	3	50
SE	1	11	18	17	3	3	53
SSE	1	7	17	26	3	1	55
S	3	3	18	18	10	1	53
SSW	1	5	26	12	8	0	52
SW	0	6	12	18	5	0	41
WSW	3	2	10	11	6	0	32
W	2	5	17	18	3	0	45
WNW	1	7	14	17	2	0	41
NW	1	9	19	19	1	0	49
NNW	1	6	18	18	3	0	46
VARIABLE	0	0	0	0	0	0	0
TOTAL	25	116	269	246	56	8	720

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	4	20	5	2	0	31
NNE	1	6	13	10	1	0	31
NE	1	7	10	3	0	0	21
ENE	0	5	4	0	0	0	9
E	0	8	5	2	0	0	15
ESE	1	4	19	7	0	0	31
SE	0	5	10	19	0	0	34
SSE	1	2	10	11	0	1	25
S	1	6	9	7	5	0	28
SSW	3	5	5	11	2	0	26
SW	5	2	8	12	0	0	27
WSW	2	5	13	10	0	0	30
W	2	4	9	3	0	0	18
WNW	2	5	4	8	0	0	19
NW	2	10	10	14	0	0	36
NNW	2	4	8	5	2	0	21
VARIABLE	0	0	0	0	0	0	0
TOTAL	23	82	157	127	12	1	402

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: JULY-SEPTEMBER 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	1	8	4	1	0	14
NNE	0	1	2	8	0	0	11
NE	0	7	1	1	0	0	9
ENE	3	3	0	0	0	0	6
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	1	1	3	2	0	7
SSE	0	0	1	0	0	0	1
S	0	1	0	0	0	0	1
SSW	0	0	1	0	0	0	1
SW	0	0	2	0	0	0	2
WSW	0	0	5	8	0	0	13
W	0	0	1	2	0	0	3
WNW	1	0	0	0	0	0	1
NW	1	2	0	3	0	0	6
NNW	0	0	2	5	0	0	7
VARIABLE	0	0	0	0	0	0	0
TOTAL	5	16	24	34	3	0	82

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

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - EXTREMELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND SPEED (in mph)

WIND DIRECTION	1-3	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	2	2	0	0	0	4
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	2	1	0	0	3
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	1	0	0	1
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	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	2	4	2	1	0	9

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: 44

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - MODERATELY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND SPEED (in mph)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	0	3	0	3
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	0	1	3	0	0	0	4
E	0	0	2	0	0	0	2
ESE	0	0	1	0	0	0	1
SE	0	0	0	1	0	0	1
SSE	0	0	2	0	1	0	3
S	0	0	0	0	0	0	0
SSW	0	0	1	6	0	0	7
SW	0	0	0	4	0	0	4
WSW	0	0	0	4	2	0	6
W	0	0	0	0	2	4	6
WNW	0	0	3	1	5	1	10
NW	0	1	2	4	0	0	7
NNW	0	2	1	0	0	0	3
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	5	15	20	13	5	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: 44

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - SLIGHTLY UNSTABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	1	0	0	1
NNE	0	0	0	1	0	0	1
NE	0	2	0	0	0	0	2
ENE	0	2	2	0	0	0	4
E	0	1	0	0	0	0	1
ESE	1	1	2	0	0	0	4
SE	0	0	2	0	1	0	3
SSE	0	2	2	0	2	0	6
S	0	1	2	1	3	0	7
SSW	0	0	0	8	3	0	11
SW	0	0	2	6	0	0	8
WSW	0	0	1	7	0	0	8
W	0	0	0	4	1	3	8
WNW	0	0	3	3	1	3	10
NW	0	0	2	10	0	0	12
NNW	0	1	1	2	0	0	4
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	10	19	43	11	6	90

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: 44

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - NEUTRAL (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	17	19	29	17	0	82
NNE	0	11	13	17	6	0	47
NE	0	9	3	1	0	0	13
ENE	4	9	16	1	0	0	30
E	2	6	15	6	0	0	29
ESE	0	5	11	9	4	0	29
SE	0	3	9	16	18	10	56
SSE	1	6	18	43	29	7	104
S	1	6	16	27	26	2	78
SSW	2	7	7	7	11	6	40
SW	2	12	8	14	4	0	40
WSW	1	10	13	27	7	1	59
W	3	10	26	61	40	21	161
WNW	5	7	24	62	34	8	140
NW	0	13	17	53	9	0	92
NNW	2	11	17	9	6	0	45
VARIABLE	0	0	0	0	0	0	0
TOTAL	23	142	232	382	211	55	1045

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 9
Hours of missing stability measurements in all stability classes: 44

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - SLIGHTLY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND SPEED (in mph)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	4	4	17	3	0	28
NNE	0	3	10	3	7	0	23
NE	1	8	12	7	3	0	31
ENE	0	9	20	4	0	0	33
E	0	2	4	11	0	0	17
ESE	1	0	9	19	9	1	39
SE	0	4	19	37	5	3	68
SSE	0	3	19	25	14	10	71
S	0	1	16	36	46	11	110
SSW	0	2	4	42	23	9	80
SW	0	2	6	18	1	4	31
WSW	0	0	11	15	2	1	29
W	1	2	13	38	10	4	68
WNW	0	9	14	20	5	1	49
NW	0	5	9	33	1	0	48
NNW	0	3	8	35	0	0	46
VARIABLE	0	0	0	0	0	0	0
TOTAL	3	57	178	360	129	44	771

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 9
Hours of missing stability measurements in all stability classes: 44

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - MODERATELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND DIRECTION	WIND SPEED (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	7	4	2	0	13
NNE	0	0	0	5	0	0	5
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	1	0	3	3	1	0	8
SE	0	0	3	10	0	0	13
SSE	0	4	13	7	2	0	26
S	0	3	3	6	0	0	12
SSW	0	1	2	6	9	1	19
SW	1	0	4	4	0	0	9
WSW	0	2	0	4	0	0	6
W	1	2	13	6	0	0	22
WNW	0	0	4	4	3	0	11
NW	0	0	2	2	0	0	4
NNW	0	1	0	1	0	0	2
VARIABLE	0	0	0	0	0	0	0
TOTAL	3	14	54	62	17	1	151

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: 44

DRESDEN NUCLEAR POWER STATION

PERIOD OF RECORD: OCTOBER-DECEMBER 1996

STABILITY CLASS - EXTREMELY STABLE (DIFF TEMP 300-35 FT)
WINDS MEASURED AT 300 FEET

WIND SPEED (in mph)

WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	> 24	TOTAL
N	0	0	0	1	0	0	1
NNE	0	0	0	3	0	0	3
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	1	0	0	1	0	0	2
S	2	1	1	0	0	0	4
SSW	0	1	0	0	0	0	1
SW	0	0	0	1	1	0	2
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	1	4	0	0	5
NNW	0	0	1	3	0	0	4
VARIABLE	0	0	0	0	0	0	0
TOTAL	3	2	3	13	1	0	22

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: 44

APPENDIX III

LISTING OF MISSED SAMPLES

3.0 LISTING OF MISSED SAMPLES

Sample Type[a]	Location	Expected Collection Date	Reason
TLD	D-202-01	29 June 1996	TLD missing from location due to removal of utility pole. Dose estimated in Table 5.1-1.
Air Sampling Variances[b]			
AP/I	D-02	27 January 1996	Flow rate outside 10%; sample volume not significantly affected.

[a] AP/I = Air Particulate/Air Iodine

[b] Air Sampling Variances are samples which have not been missed but indicate unusual sample results or factors which may contribute to sample anomalies.

APPENDIX IV

MILCH ANIMALS, NEAREST LIVESTOCK, AND NEAREST RESIDENCES CENSUSES

DRESDEN

MILCH ANIMALS CENSUS, 1996

A. There are no dairy farms within a 6.5 mile radius of Dresden Station.

B. Sampling Locations

D-25 V. Biros Dairy Farm
11.4 miles @ 220°

Number of cows being milked - 94

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

D-26 Halpins Dairy Farm
16.0 miles @ 175°

Number of cows being milked - 55

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

Sherman Tweet Farm[a]
8.5 miles @ 338°

Number of cows being milked - 40

Diet consists of: 25% pasture
25% ground grain
50% hay or silage

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[a] Farm does not wish to participate in program at this time.
Census conducted by A. Lewis on August 20, 1996.

DRESDEN

NEAREST LIVESTOCK CENSUS, 1996

Nearest livestock of the Dresden Station within a 6.5 mile radius.

Sector	Direction	Distance
A	N	1.4 miles
B	NNE	6.0 miles
C	NE	2.5 miles
D	ENE	4.7 miles
E	E	None
F	ESE	None
G	SE	None
H	SSE	None
J	S	1.2 miles
K	SSW	1.2 miles
L	SW	None
M	WSW	None
N	W	0.5 miles
P	WNW	0.5 miles
Q	NW	0.5 miles
R	NNW	1.0 miles

Census conducted by A. Lewis on August 20, 1996.

NEAREST RESIDENCE CENSUS, 1996

Nearest resident of the Dresden Station within a 6.5 mile radius.

Sector	Direction	Distance
A	N	1.2 miles
B	NNE	0.8 miles
C	NE	2.3 miles
D	ENE	0.8 miles
E	E	1.1 miles
F	ESE	1.0 miles
G	SE	0.6 miles
H	SSE	0.5 miles
J	S	0.5 miles
K	SSW	3.3 miles
L	SW	3.7 miles
M	WSW	5.8 miles
N	W	3.5 miles
P	WNW	3.7 miles
Q	NW	2.6 miles
R	NNW	0.8 miles

Census conducted by A. Lewis on August 20, 1996.

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 Protecti Agency's crosscheck program, comparison of EPA and Teledyne Brown Engineering Environmental S rvices, 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 indavertently 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].

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-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

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 counting 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	Teledyne Results (4.66 Sigma) 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	Teledyne Results (4.66 Sigma) 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	Teledyne Results (4.66 Sigma) 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 ± 1.1; 1.1
Jan, 1996	Gr. Beta	CW - 132, 133	A	5.5 ± 1.7; 1.8	3.9 ± 1.6; 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 Codes[b]	Accepted[c] Rejected	Concentration in pCi/L[a] First Result	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	84.4 ± 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	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	Concentration in pCi/L[a] 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

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Date Colected	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	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	F - 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, 19[illegible]	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 Codes[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 ± 0.4;0.6
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	0.8 ± 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;264.2
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;250.0
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	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	13.3±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[c] Rejected	Concentration in pCi/L[a] First Result	Concentration in pCi/L[a] 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[c] 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;239.8
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	Concentration in pCi/L[a] 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 Results ±Standard Deviation[c]
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	536.0 ± 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 - 1.6
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 - 1.9
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	Pu-239	0.7 ± 0.1; 0.1	0.8 ± 0.1	0.6 - 1.4
STW-755	Water	Mar, 1996	Sr-90	2.2 ± 0.7; 0.7	1.5 ± 0.0	0.7 - 1.7
STW-756	Water	Mar, 1996	Gr. Alpha	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	24.0 ± 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.

APPENDIX VI

ERRATA DATA

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 will be effective with the second quarter of 1997, during which ComEd will populate Dresden Station's direct radiation environmental locations with its own environmental TLDs as well as with TLDs supplied by a vendor. Dresden's environmental TLDs are scheduled to be placed in the field on March 29, 1997. Due to the short notice given to the vendor to supply us with their TLDs, the vendor's TLDs are expected to be placed in the field no later than April 5, 1997. (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 Dresden's TLDs, provided we have successfully implemented the interlaboratory comparison program. Otherwise, the vendor's TLDs will be ComEd's environmental dose of record, and the dose to the vendor's TLDs for the period from the date the Dresden TLDs are placed in the field until the date the vendor's TLDs are placed in the field will be estimated.