DRESDEN NUCLEAR POWER STATION

RADIOACTIVE WASTE, ENVIRONMENTAL MONITORING AND
OCCUPATIONAL PERSONNEL RADIATION EXPOSURE

JULY THROUGH DECEMBER 1976

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INTRODUCTION

The Dresden Nuclear Power 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 three boiling water reactors (GE design) to generate electricity. Unit 1 began operating in 1960 and has a rated power output of 200 megawatts electrical (MWe). Units 2 and 3 began operating in 1970 and 1971, respectively, each with a rated power output of 800 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 half-life gases. Releases to the atmosphere are calculated on the basis of analyses of daily grab samples of noble gases and continuously collected composite samples of iodine and particulate matter. The results of effluent analyses are summarized on a monthly basis and reported semiannually 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 effluent and meteorological data and data on isotopic composition of effluents.

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

Radiation dose to individuals and to population groups is calculated when effluent and environmental monitoring data for the six month period indicate a likelihood of public intakes in excess of those that could result from continuous exposure to concentration values listed in Appendix B, Table II, Part 20, Title 10, Code of Federal Regulations (10CFR20).

SUMMARY

Gaseous and liquid effluents for the period remained below the 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 plant are unlikely to exceed one percent of intake that could result from continuous exposure to the concentration value listed in Appendix B, Table II of 10CRF20. Gamma radiation exposure from noble gases released to the atmosphere represented the critical pathway for the period with a maximum individual dose estimated to be 4.6 mrem for the six-month period, and 8.6 mrem for the year, when a shielding and occupancy factor of two is assumed. Environmental monitoring results confirm that dose via other pathways was not significant.

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 period 1 July through 31 December 1976, are listed in Table 1.1-1 and 1.1-2. A six-month total of 2.7 E+05 curies of noble gases was released during the period with a maximum release rate during any one-hour period of 5.4 E+04 µCi/sec.

A total of 0.88 curies of I-131 was released during the six-month period.

A six-month total of 2.9 curies of beta-gamma emitters and non-detectable amounts of alpha emitters was released as airborne particulate matter.

1.2 LIQUIDS RELEASED TO ILLINOIS RIVER

A total of 1.8 E+06 liters of radioactive liquid wastes containing 0.3 curies (excluding tritium) were discharged from the station. These wastes were released at a maximum monthly average concentration of 2.1 E-08 µCi/ml from Unit 1 and 2.6 E-08 µCi/ml from Units 2 and 3 which is 21% and 26% respectively of the Technical Specification release limits for unidentified radioactivity. During the same period, 4.7 curies of tritium and 0.01 curies of alpha radioactivity were released. Monthly release estimates and principal radionuclides in liquid effluents are given in Table 1.2-1 and 1.2-2.

2.0 SOLID RADIOACTIVE WASTE

Solid radioactive wastes were shipped to Nuclear Engineering Company, Sheffield, Illinois or Moorehead, Kentucky, and Barnwell Nuclear Center, South Carolina. The record of waste shipments is summarized in Table 2.0-1.

TABLE 1.1-1

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 1 DOCKET NOS.: 50 - 10 YEAR: 1976

I. Gaseous Effluents	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity Releases a) Total Release	curies	5.1E+04	8.2E+04	2.6E+04	6.0E+04	3.2E+04	1.7E+04	2.7E05	
b) Maximum Release Rate	uCi/sec	3.3E+04	5.4E+04	2.8E+04	4.5E+04	3.1E+04	1.0E+04	5.4E+04	
c) Isotopes Released									
Kr-85m	curies	1.3E03	2.1E03	6.2E02	9.6E02	9.0E02	8.6E03	1.4E04	
Kr-87	curies	4.3E03	6.6E03	1.7E03	4.4E03	2.7E03	2.4E03	2.2E04	
Kr-88	curies	3.8E03	5.6E03	2.0E03	3.5E03	2.8E03	1.5E03	1.9E04	
Xe-133	curies	1.8E03	3.0E03	7.3E02	1.4E03	1.2E03	1.2E03	9.3E03	
Xe-135	curies	9.8E03	1.6E04	5.4E03	6.1E03	5.1E03	4.1E02	4.3E04	
Xe-135m	curies	9.8E03	1.5E04	5.1E03	9.6E03	4.5E03	2.4E03	4.6E04	
Xe-138	curies	2.0E04	3.3E04	1.0E04	3.4E04	1.5E04	5.1E02	1.1E05	
d) Percent of Chimney Limit	%	3.4	5.4	1.80	4.0	2.17	1.12	3.0	
e) Average Release Rate	uCi/sec	1.9E+04	3.1E+04	1.0E+04	2.2E+04	1.2E+04	6.3E+03	2.6E+04	
2. Iodine Releases									
a) Isotopes Released									
I-131	curies	4.2E-02	7.1E-02	1.1E-01	1.4E-02	1.9E-02	8.1E-03	2.6E-01	
I-133	curies	1.0E-01	1.1E-01	5.9E-01	4.4E-02	5.7E-02	5.5E-02	1.0	
I-135	curies	1.0E-01	1.2E-01	2.2E-02	5.2E-02	6.1E-02	7.7E-02	4.3E-01	
b) Percent of Chimney Limit	%	0.65	1.11	1.81	0.22	0.30	0.13	0.70	
c) Average Release Rate	uCi/sec	1.6E-02	2.7E-02	4.3E-02	5.3E-03	7.2E-03	3.0E-03	1.7E-02	

TABLE 1.1-1 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 1 DOCKET NOS.: 50-10 YEAR: 1976

I. Gaseous Effluents (continued)	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
3. Particulate Releases a) Gross Radioactivity ($\beta\gamma$)	curies	3.1E-02	3.0E-02	3.4E-02	2.5E-02	3.0E-02	4.1E-02	1.9E-01	
b) Gross Alpha Radioactivity	curies								
c) Isotopes Released - Ce-141	curies	----	----	----	----	----	9.0E-05	9.0E-05	
Cr-51	curies	----	----	----	----	----	----	----	
Co-60	curies	3.6E-04	3.2E-04	1.1E-03	1.8E-05	3.0E-04	1.1E-03	3.2E-03	
Sr-89	curies	2.5E-02	2.4E-02	2.3E-02	2.2E-02	2.4E-02	3.3E-02	1.5E-01	
Sr-90	curies	1.2E-05	1.5E-05	3.1E-05	5.0E-06	6.0E-06	8.2E-06	7.7E-05	
Mo-99	curies	----	----	----	----	----	----	----	
I-131	curies	7.1E-04	5.9E-04	1.0E-03	1.1E-03	2.0E-03	2.2E-04	5.6E-03	
Cs-134	curies	6.5E-05	3.4E-04	3.4E-04	----	1.3E-04	1.1E-04	9.9E-04	
Cs-137	curies	5.3E-04	1.6E-03	1.0E-03	2.9E-04	3.2E-04	----	3.7E-03	
Ba-140	curies	4.4E-03	3.5E-03	6.9E-03	1.5E-03	2.6E-03	5.5E-03	2.4E-02	
La-140	curies	----	----	----	----	----	----	----	
Np-239	curies	----	----	----	----	----	----	----	
Tc-99m	curies	----	----	----	----	----	----	----	
Co 58	curies	3.0E-04	----	6.6E-04	4.8E-05	2.4E-04	1.2E-03	2.4E-03	
Mn 54	curies	----	----	----	1.3E-06	----	----	1.3E-06	
d) Percent of Chimney Limit	%	0.40	0.47	0.55	0.38	0.47	0.63	0.50	
e) Average Release	uCi/sec	1.2E-02	1.1E-02	1.3E-02	9.2E-03	1.1E-02	1.5E-02	1.2E-02	
4. Sum of Iodines & Particulates									
a) Percent of Chimney Limit	%	1.13	1.50	2.36	0.61	0.77	0.76	1.20	
5. Gaseous Tritium									
a) Total Release	curies	2.8E+01	6.3E+00	3.2E-01	8.5E+00	7.2E+00	2.4E+00	5.3E+01	
b) Average Release Rate	uCi/sec	1.0E+01	2.4E+00	1.3E-01	3.2E+00	2.8E+00	9.0E-01	3.2E+00	

TABLE 1.1-2

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station-Units 2/3 DOCKET NOS.: 50-237, 50-249 YEAR: 1976

I. Gaseous Effluents	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity Releases a) Total Release	curies	2.1E+03	9.1E+02	4.6E+02	1.3E+02	1.2E+03	5.6E02	5.4E+03	6.6D.1.f.(1)
b) Maximum Release Rate	uCi/sec	1.4E+04	6.1E+03	3.1E+03	6.8E+01	5.5E+03	4.6E+03	1.4E+04	6.6D.1.f (2)
c) Isotopes Released									6.6D.1...(4)
Kr-85m	curies	1.5E02	8.8E01	5.6E01	8.5	9.2E02	4.3E01	1.3E03	
Kr-87	curies	6.0E01	----	----	----	----	----	6.0E01	
Kr-88	curies	2.0E02	1.3E01	----	----	----	6.1	2.2E02	
Xe-133	curies	7.3E02	7.8E02	3.7E02	1.2E02	1.8E02	5.0E02	2.7E03	
Xe-135	curies	9.1E02	3.1F01	2.6E01	----	1.3E01	1.2E01	9.9E02	
Xe-135m	curies	----	----	----	----	----	----	----	
Xe-138	curies	----	----	----	----	----	----	----	
d) Percent of Chimney Limit	%	0.09	0.04	0.02	.01	.05	0.02	.03	6.6D.1.f.(3)
e) Percent of Vent Stack Limit	%								6.6D.1.f.(3)
f) Average Release Rate	uCi/sec	7.8E+02	3.4E+02	1.8E+02	5.0E+01	4.5E+02	2.1E+02	3.4E+02	
2. Chimney Iodine Releases									6.6D.1.f.(1)
a) Isotopes Released									
I-131	curies	8.2E-02	8.1E-02	1.5E-01	2.4E-02	6.9E-02	1.5E-01	5.6E-01	
I-133	curies	4.1E-01	4.5E-01	7.6E-01	5.2E-02	4.2E-01	6.4E-01	2.7	
I-135	curies	6.3E-01	7.4E-01	9.1E-01	5.9E-01	6.0E-01	8.1E-01	4.3	
b) Percent of Chimney Limit	%	0.71	0.73	1.45	0.25	0.64	1.30	0.85	6.6D.1.f.(3)
c) Average Release Rate	uCi/sec	3.1E-02	3.0E-02	5.6E-02	8.9E-03	2.7E-02	5.6E-02	2.1E-01	

TABLE 1.1-2 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Unit 2/3 DOCKET NOS.: 50-237, 50-249 YEAR: 1976

I. Gaseous Effluents(continued)	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
3. Chimney Particulate Release									
a) Gross Radioactivity(β-γ)	curies	4.6E-01	4.8E-01	3.1E-01	5.8E-02	3.5E-01	7.3E-01	2.4E+00	6.6D.1.f.(1)
b) Gross Alpha Radioactivity	curies								
c) Isotopes Released - Mn-54	curies	3.7E-04	----	----	5.9E-04	----	2.2E-03	3.2E-03	6.6D.1.f.(1)
Cr-51	curies	----	----	----	----	----	----	----	
Co-60	curies	----	----	8.1E-04	1.3E-03	1.2E-02	2.1E-02	3.5E-02	
Sr-89	curies	2.4E-01	2.6E-01	1.9E-01	2.5E-02	2.3E-02	5.5E-02	7.9E-01	
Sr-90	curies	6.0E-04	5.8E-04	4.0E-04	2.3E-05	3.5E-05	7.3E-05	1.7E-03	
Mo-99	curies	----	----	----	----	----	----	----	
I-131	curies	1.5E-02	3.8E-02	1.5E-02	1.1E-03	1.4E-01	5.5E-02	2.6E-01	
Cs-134	curies	7.8E-04	----	----	----	----	----	7.8E-04	
Cs-137	curies	3.5E-03	2.4E-03	2.0E-03	----	----	8.2E-03	1.6E-02	
Ba-140	curies	2.0E-01	1.8E-01	9.8E-02	3.0E-02	1.8E-01	5.6E-01	1.2E00	
La-140	curies	----	----	----	----	----	----	----	
Np-239	curies	----	----	----	----	----	----	----	
Tc-99m	curies	----	----	----	----	----	----	----	
Ce-144	curies	----	----	3.7E-03	----	----	2.7E-02	3.1E-02	
Ce-141	curies	2.3E-03	----	8.1E-04	----	3.6E-03	2.8E-03	9.5E-03	
d) Percent of Chimney Limit	%	4.0	4.18	2.81	0.62	3.3	6.35	3.54	6.6D.1.f.(3)
e) Average Release Rate	uCi/sec	1.7E-01	1.8E-01	1.18E-01	2.2E-02	1.3E-01	2.7E-01	8.9E-01	
4. Vent Stack Iodine Release									6.6D.1.f.(1)
a) Isotopes Released									
I-131	curies	9.7E-03	1.4E-02	1.4E-02	1.5E-02	6.2E-03	5.4E-03	6.4E-02	
I-133	curies	4.0E-02	7.0E-02	4.9E-02	1.7E-02	2.3E-02	2.2E-02	2.3E-01	
I-135	curies	4.6E-02	1.2E-01	5.4E-02	----	2.1E-02	2.4E-02	2.7E-01	
b) Percent of Vent Stack Limit	%	3.04	4.38	4.42	4.76	2.0	1.7	3.38	6.6D.1.f.(3)
c) Average Release Rate	uCi/sec	3.6E-03	5.3E-03	5.3E-03	5.7E-03	2.4E-03	2.0E-03	4.1E-03	

TABLE 1.1-2 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Unit 2/3 DOCKET NOS.: 50-237, 50-249 YEAR: 1976

I. Gaseous Effluents (Continued)	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
5. Vent Stack Particulate Release (a) Gross Radioactivity (B-γ)	curies	1.3E-02	4.9E-02	3.6E-02	3.9E-02	6.1E-02	3.4E-02	2.6E-01	
(b) Gross Alpha Radioactivity	curies								6.6D.1.f.(1)
(c) Isotopes Released									
Cr-51	curies	3.5E-03	5.4E-03	4.2E-03	5.2E-03	8.7E-03	----	2.7E-02	6.6D.1.f(1)
Co-60	curies	5.6E-03	1.3E-02	4.8E-03	1.7E-02	1.3E-02	8.8E-03	6.3E-02	
Sr-89	curies	4.0E-03	5.5E-03	3.1E-03	1.1E-03	2.4E-03	5.2E-03	2.2E-02	
Sr-90	curies	4.6E-05	5.7E-05	2.7E-05	7.4E-05	2.6E-04	2.0E-04	6.6E-04	
Mo-99	curies	5.0E-03	----	3.1E-03	----	----	----	8.1E-03	
I-131	curies	6.8E-03	8.9E-03	6.1E-03	2.0E-03	1.5E-02	7.3E-03	4.6E-02	
Cs-134	curies	2.6E-04	2.7E-04	2.5E-04	7.1E-04	7.2E-04	5.7E-04	2.8E-03	
Cs-137	curies	4.4E-04	6.9E-04	4.7E-04	1.2E-03	2.0E-03	2.5E-03	7.3E-03	
Ba-140	curies	5.5E-03	6.9E-03	3.7E-03	3.0E-03	5.9E-03	4.1E-03	2.9E-02	
La-140	curies	6.4E-03	7.6E-03	4.1E-03	3.5E-03	2.3E-03	4.1E-03	2.8E-02	
Np-239	curies	----	----	----	----	----	----	----	
Tc-99m (continued on next sheet)	curies	5.5E-03	----	3.4E-03	----	----	----	8.9E-03	
(d) Percent Vent Stack Limit	%	13.6	15.3	11.53	12.23	19.56	10.73	13.83	6.6D.1.f.(3)
(e) Average Release Rate	uCi/sec	1.6E-02	1.8E-02	1.4E-02	1.5E-02	2.3E-02	1.3E-02	1.7E-02	
6. Sum of Iodine and Particulate									
a) Percent of Chimney Limit	%	4.71	4.9	4.26	0.87	3.94	7.65	4.39	6.6D.1.f.(3)
b) Percent of Vent Stack Limit	%	16.60	19.7	15.94	16.99	21.56	12.39	17.20	
7. Gaseous Tritium									
a) Release	curies	2.8E+01	6.3E+00	3.2E-01	8.5E+00	7.2E+00	2.4E+00	5.3E+01	
b) Average Release Rate	uCi/sec	3.4E+00	3.3E+00	1.5E+01	4.02E+00	4.8E-03	4.7E+00	5.1E+00	
c) Percent Tech Spec Limit									

TABLE 1.1-2 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station - Unit 2/3 **DOCKET NOS.:** 50-237, 50-249 **YEAR:** 1976

I. Gaseous Effluents (continued)	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
5. Isotopes Released (continued)	Curies								
Mn-54	curies	2.7E-04	7.6E-04	5.1E-04	1.9E-03	2.6E-03	3.8E-04	6.3E-03	6.6D.1.f(1)
Co-58	curies	1.2E-04	5.3E-05	4.3E-04	1.2E-03	1.7E-03	2.4E-04	3.8E-03	
Fe-59	curies	----	----	2.4E-04	4.6E-04	7.3E-04	----	1.4E-03	
Zn-65	curies	----	----	8.8E-05	3.8E-04	----	----	4.7E-04	
Zr-95	curies	----	----	2.5E-04	3.3E-04	7.1E-04	1.4E-04	1.4E-03	
Nb-95	curies	----	----	2.1E-04	7.6E-04	1.2E-03	3.5E-04	2.5E-03	
Ce-144	curies	----	----	----	3.1E-04	1.4E-03	----	1.7E-03	
Ce-141	curies	1.1E-04	2.5E-04	1.7E-04	5.9E-04	7.1E-04	2.1E-04	2.1E-03	
Ru-103	curies	----	----	2.3E-04	3.5E-04	6.6E-04	2.2E-05	1.3E-03	

TABLE 1.2-1

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 1 DOCKET NOS.: 50-10 YEAR: 1976

II. Liquid Effluents	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity (β-γ)									
a) Total Release	Curies	1.5E-02	2.0E-02	3.5E-02	7.0E-02	2.9E-02	1.0E-02	1.8E-01	
b) Average Concentration Released	uci/ml	5.5E-10	7.2E-10	1.4E-09	2.6E-09	1.1E-09	4.7E-10	1.2E-09	6.6D.1.e.(1)
c) Maximum Concentration Released	uci/ml	2.7E-08	3.7E-08	3.8E-08	4.7E-08	3.3E-08	2.1E-08	2.1E-08	6.6D.1.e.(4)
d) Percent of Tech Spec Limit	%								6.6D.1.e.(5)
									6.6D.1.e.(6)
2. Tritium									
a) Total Release	Curies	7.6E-04	4.0E-04	8.0E-04	8.1E-04	1.1E-02	4.2E-04	1.4E-02	6.6D.1.e.(8)
b) Average Concentration Released	uci/ml	2.8E-11	1.5E-11	3.2E-11	3.0E-11	5.3E-10	1.9E-11	1.1E-10	
c) Percent of Tech Spec Limit	%								
3. Dissolved Noble Gases									
a) Total Release	Curies	----	----	----	----	----	----	----	
b) Average Concentration Released	uci/ml								
c) Percent of Tech Spec Limit	%								
4. Gross Alpha Radioactivity									
a) Total Release	Curies	6.7E-06	5.1E-04	5.1E-05	7.9E-05	2.0E-04	1.0E-02	1.1E-02	
b) Average Concentration Released	uci/ml	2.5E-13	1.9E-11	2.0E-12	2.9E-12	9.3E-12	4.7E-10	8.4E-11	
5. Volume of Liquid Waste to Discharge Canal	Liters	8.7E+04	6.5E+04	1.6E+05	2.7E+05	1.5E+05	1.0E+05	6.9E+05	6.6D.1.e.(2)
6. Volume of Dilution Water	Liters	2.7E+10	2.7E+10	2.5E+10	2.7E+10	2.1E+10	2.2E+10	1.5E+11	6.6D.1.e.(3)

TABLE 1.2-1 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station
Unit 1 Laundry Drain Tanks

DOCKET NOS.: 50 - 10

YEAR: 1976

I. Liquid Effluents (continued)	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
7. Isotopes Released	**Curies**								
Mn-54	curies	4.6E-04	5.7E-04	3.0E-03	4.9E-03	2.8E-03	9.2E-04	1.3E-02	
Co-58	curies	5.5E-04	----	7.2E-04	3.1E-03	1.4E-03	1.1E-04	5.9E-03	
Co-60	curies	7.7E-03	1.2E-02	2.9E-02	5.2E-02	1.8E-02	8.6E-03	1.3E-01	
Sr-89	curies	4.1E-03	8.3E-04	1.8E-04	1.3E-04	1.3E-04	6.8E-05	5.4E-03	
Sr-90	curies	3.9E-05	5.4E-05	7.1E-06	2.8E-05	2.9E-05	1.5E-05	1.7E-04	
Cs-134	curies	5.7E-04	1.5E-03	7.8E-04	2.4E-04	2.1E-04	9.9E-05	3.4E-03	
Cs-137	curies	1.5E-03	5.3E-03	2.0E-03	1.0E-03	1.0E-03	4.7E-04	1.1E-02	
Fe-59	curies	----	----	----	2.2E-03	9.6E-04	----	3.2E-03	
Nb-95	curies	----	----	----	2.0E-03	9.4E-04	----	2.9E-03	
Ru-103	curies	----	----	----	2.7E-03	8.7E-04	----	3.6E-03	
Ce-141	curies	----	----	----	1.6E-03	7.0E-04	----	2.3E-03	
Zr-95	curies	----	----	----	----	7.8E-04	----	7.8E-04	
Ce-144	curies	----	----	----	----	1.6E-03	----	1.6E-03	

TABLE 1.2-2

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: DRESDEN NUCLEAR POWER STATION - UNIT 2/3 DOCKET NOS.: 50-237, 50-249 YEAR: 1976

II. Liquid Effluents	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
1. Gross Radioactivity (β-γ) a) Total Release	Curies	5.5E-03	NO DISCHARGE	NO DISCHARGE	NO DISCHARGE	1.0E-01	5.4E-04	1.1E-01	
b) Average Concentration Released	uci/ml	3.2E-11	THIS MONTH	THIS MONTH	THIS MONTH	1.8E-09	6.4E-11	3.2E-10	
c) Maximum Concentration Released	uci/ml	5.6E-09				2.6E-08	1.9E-08	2.6E-08	
d) Percent of Tech Spec Limit	%								
2. Tritium									
Total Release	Curies	4.4E-02	----	----	----	4.6E+00	8.9E-02	4.7E+00	
b) Average Concentration Released	uci/ml	2.6E-10	----	----	----	8.2E-08	1.1E-08	1.6E-08	
c) Percent of Tech Spec Limit	%								
3. Dissolved Noble Gases									
a) Total Release	Curies	----	----	----	----	----	----		
b) Average Concentration Released	uci/ml								
c) Percent of Tech Spec Limit	%								
4. Gross Alpha Radioactivity									
a) Total Release	Curies	0	----	----	----	5.1E-04	4.1E-06	5.1E-04	
b) Average Concentration Released	uci/ml	0	----	----	----	9.1E-12	4.8E-13	1.6E-12	
5. Volume of Liquid Waste to Discharge Canal	Liters	1.0E+04	----	----	----	1.1E+06	1.2E+04	1.1E+06	
6. Volume of Dilution Water	Liters	1.7E+11	----	----	----	5.6E+10	8.4E+09	2.3E+11	

TABLE 1.2-2 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

FACILITY: Dresden Nuclear Power Station
D 2/3 Waste Sample Tanks

DOCKET NOS.: 50-237, 50-249

YEAR: 1976

II. Liquid Effluents (continued)	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
7. Isotopes Released	Curies								
Mn-54	curies	2.0E-04	NO	NO	NO	6.1E-03	----	6.3E-03	
Co-58	curies	8.2E-04	DISCHARGE	DISCHARGE	DISCHARGE	5.3E-03	----	1.1E-03	
Co-60	curies	1.7E-08				4.8E-02	1.4E-04	4.8E-02	
Sr-89	curies	1.1E-04				2.1E-04	1.2E-05	3.3E-04	
Sr-90	curies	1.7E-05				3.1E-05	1.7E-06	5.0E-05	
I-131	curies	2.4E-03				----	2.5E-04	2.7E-03	
Cs-134	curies	1.3E-03				----	1.7E-05	1.3E-03	
Cs-137	curies	6.4E-04				----	1.2E-04	7.6E-04	
Zr-95	curies	----				1.1E-02	----	1.1E-02	
Nb-95	curies	----				1.8E-02	----	1.8E-02	
Ru-103	curies	----				7.5E-03	----	7.5E-03	
Ce-141	curies	----				6.7E-03	----	6.7E-03	

TABLE 2.0-1

SOLID WASTE SHIPMENTS, JULY-DECEMBER, 1976

FACILITY: Dresden Nuclear Power Station DOCKET NOS.: 50-10, 50-237, 50-549 YEAR: 1976

I. Solid Waste Shipped Offsite For Burial or Disposal	UNITS	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	6 MO. TOTAL	TECH. SPEC. REF.
1. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.									
a) Quantity Shipped	cubic meters	2.0E+02	1.4E+02	1.3E+02	6.1E+01	9.7E+01	5.8E+01	6.9E+02	6.5.D.g.(1)
b) Radioactivity	curies	1.3E+02	2.5E+02	4.4E+02	5.4E+02	1.9E+03	4.6E+02	3.7E+03	6.5.D.g.(2)
2. Dry compressible waste, contaminated equipment, etc.									
a) Quantity Shipped	cubic meters	1.4E+01	2.4E+01	1.6E+01	1.9E+02	1.5E+02	1.9E+01	4.1E+02	6.5.D.g.(1)
b) Radioactivity	curies	1.1E+00	1.2E+00	2.5E-01	2.0E+00	2.3E+00	1.4E+00	8.3E+00	6.5.D.g.(2)
II. Solid Waste Shipped Offsite For Burial or Disposal (Processed by contractor)									
1. Spent Resins, Filter Sludges, evaporator bottoms, etc.									
a) Quantity Shipped	cubic meters	7.4E+00	0	0	0	4.9E+00	0	1.2E+01	6.5.D.g.(1)
b) Radioactivity	curies	9.5E-02	0	0	0	2.7E+00	0	2.8E+00	6.5.D.g.(2)
2. Dry Compressible Waste, contaminated equipment, etc.									
a) Quantity	cubic meters	1.6E+02	3.6E+02	5.5E+01	1.1E+03	1.2E+03	0	2.9E+03	6.5.D.g.(1)
b) Radioactivity	curies	2.9E-02	4.7E-01	2.3E-01	8.8E-01	1.6E+00	0	3.2E+00	6.5.D.g.(2)

TABLE 2.0-1 (Cont'd)

DRESDEN NUCLEAR POWER STATION

SOLID WASTE DISPOSITION

YEAR 1976

MONTH	NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
JULY	47	Motor Freight (Exclusive use Only)	Sheffield Nuclear Center
AUGUST	62	Motor Freight (Exclusive use Only)	Sheffield Nuclear Center
SEPTEMBER	36	Motor Freight (Exclusive use Only)	Sheffield Nuclear Center
OCTOBER	75	Motor Freight (Exclusive use Only)	Sheffield Nuclear Center
OCTOBER	53	Motor Freight (Exclusive use Only)	Barnwell South Carolina
NOVEMBER	96	Motor Freight (Esclusive use Only)	Sheffield Nuclear Center
NOVEMBER	63	Motor Freight (Exclusive use Only)	Barnwell South Carolina
DECEMBER	24	Motor Freight (Exclusive use (Only)	Sheffield Nuclear Center

3.0 DOSE TO MAN

3.1 GASEOUS EFFLUENT PATHWAYS

3.1.1 GAMMA DOSE RATES

Gamma dose rates off-site were calculated based on measured release rates, isotopic composition of the noble gases, and meteorological data for the period (Table 3.1-1). Isodose contours are shown in Figure 3.1-1 for the report period, and in Figure 3.1-2 for the year. Based on measured effluents and meteorological data, the maximum dose to an individual at that location would be 4.6 mrem during the six-month period and 8.6 mrem for the year, with an occupancy or sheilding factor of two included.

3.1.1.2 BETA AIR DOSE RATES

The range of beta particles in air is relatively small (on the order of a few meters or less); consequently, plumes of gaseous effluents may be considered "infinite" for purpose of calculating the dose from beta radiation incident on the skin. The surface dose, i.e., beta air dose, from beta emitters in the infinite cloud can be approximated; however, the actual dose to sensitive skin tissues is difficult to calculate because this depends on the beta particle energies, thickness of inert skin, and clothing covering sensitive tissues. For purposes of this report the surface dose only is given.

The air concentrations of radioactive noble gases at the off-site receptor locations are given in Figures 3.1-3 and 3.1-4. The maximum off-site beta air dose for the six-month period was 9.4 mrad; that for the year was 12.1 mrad.

3.1.2 RADIOACTIVE IODINE

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine, and some of the radioiodines, especially I-131 and I-133, released during routine operation of the plant may be made available to man thus resulting in a dose to the thyroid. Studies of environmental radioiodine show that the pathways of interest are inhalations of airborne iodine, and ingestion of iodine in milk or on leafy vegetation.

TABLE 3.1-1

DOSES RESULTING FROM AIRBORNE RELEASES
DRESDEN NUCLEAR POWER STATION
MONTH ENDED DECEMBER, 1976

TYPE	UNITS	MAXIMUM DOSE (1) THIS MONTH	LAST 3 MONTHS	LAST 6 MONTHS	JANUARY TO DATE
WHOLE BODY (2)	MREM	2.628E-01	2.150E+00	4.583E+00	8.645E+00
SKIN	MREM	1.452E-01	4.156E+00	9.414E+00	1.213E+01
INFANTS THYROID (3)	MREM	3.088E-03	1.150E-02	7.732E-01	1.060E+00
ADULTS THYROID (4)	MREM	2.547E-03	2.614E-02	9.680E-02	1.076E-01
POPULATION (5)	PERSON-REM	3.835E+00	2.063E+01	1.627E+02	1.953E+02(6)

(1) DOSES CALCULATED IN ACCORDANCE WITH PROPOSED A.L.A.P. REGULATORY GUIDES AA AND OD.
(2) INCLUDES SHIELDING AND OCCUPANCY FACTOR OF 2.
(3) INCLUDES INHALATION DOSE FOR EACH MONTH AND DOSE RECEIVED VIA MILK PATHWAY FROM APRIL THRU SEPTEMBER ONLY.
(4) INCLUDES INHALATION DOSE FOR EACH MONTH AND DOSE RECEIVED VIA LEAFY VEGETABLE PATHWAY DURING AUGUST, SEPTEMBER AND OCTOBER ONLY.
(5) POPULATION DOSE IS DETERMINED BY MULTIPLYING THE POPULATION IN EACH SECTOR AND BAND WIDTH BY THE DOSE AT THE MID-POINT OF THE AREA. THE DOSE INTEGRATION EXTENDS TO 50 MILES. INCLUDES SHIELDING AND OCCUPANCY FACTOR OF 2.
(6) THE EQUIVALENT AVERAGE POPULATION DOSE IS 3.180E-05 REM.

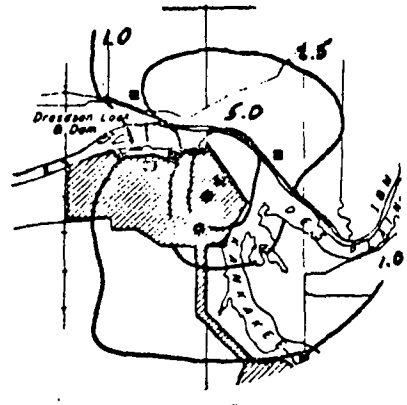
POOR ORIGINAL

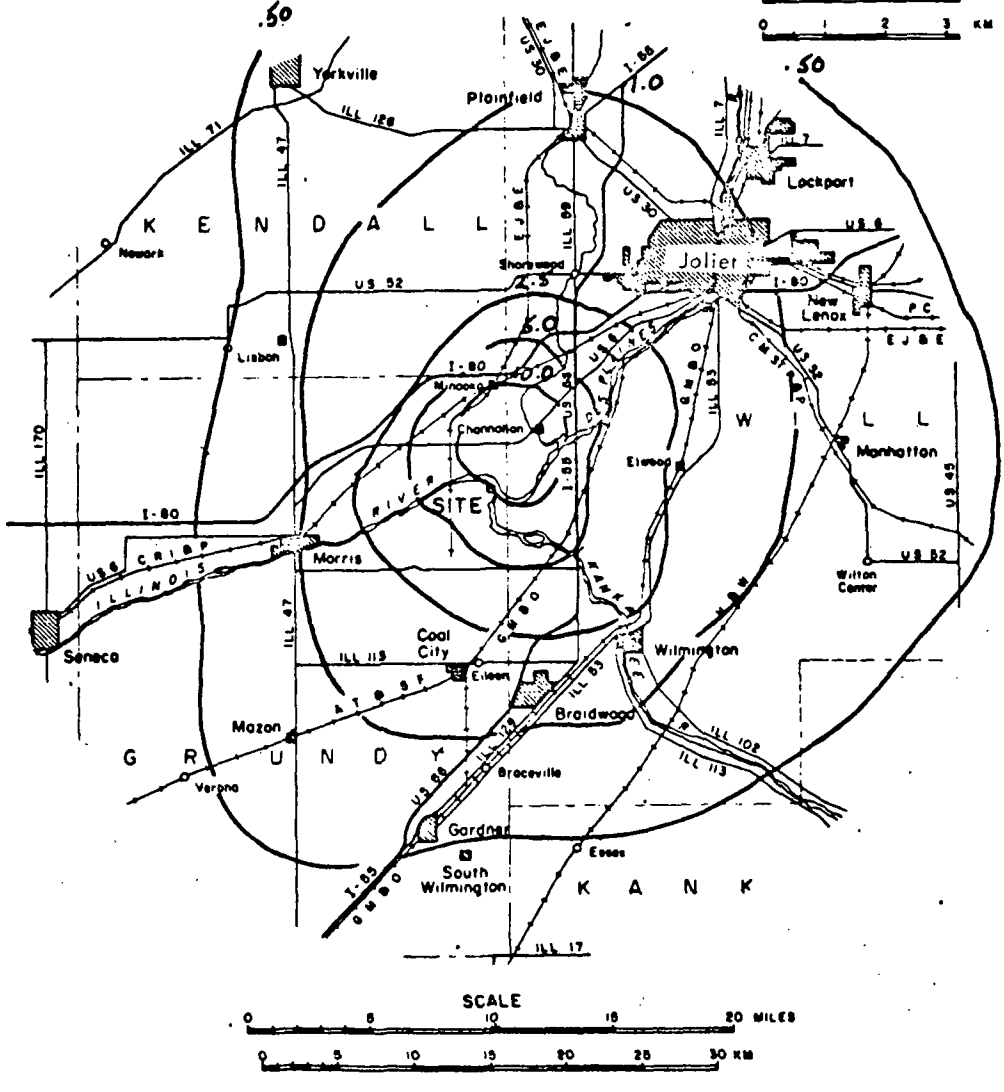
FIGURE 3.1-1

Estimated Cumulative Gamma Dose (mrem) from DNPS for the period July-December 1976.

Esopleth Labels:

Small Figure - Multiply by 10^{0}
Large Figure - Multiply by 10^{-1}





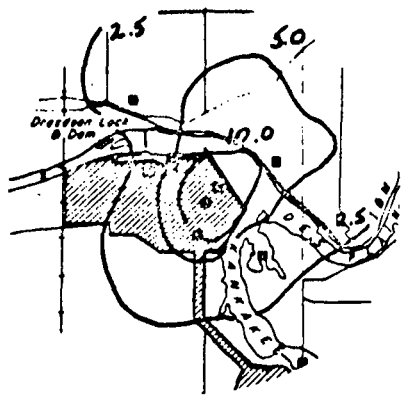
POOR ORIGINAL

FIGURE 3.1-2

Estimated Cumulative Gamma Dose (mrem) from DNPS for the period January-December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^0
Large Figure - Multiply by 10^{-1}



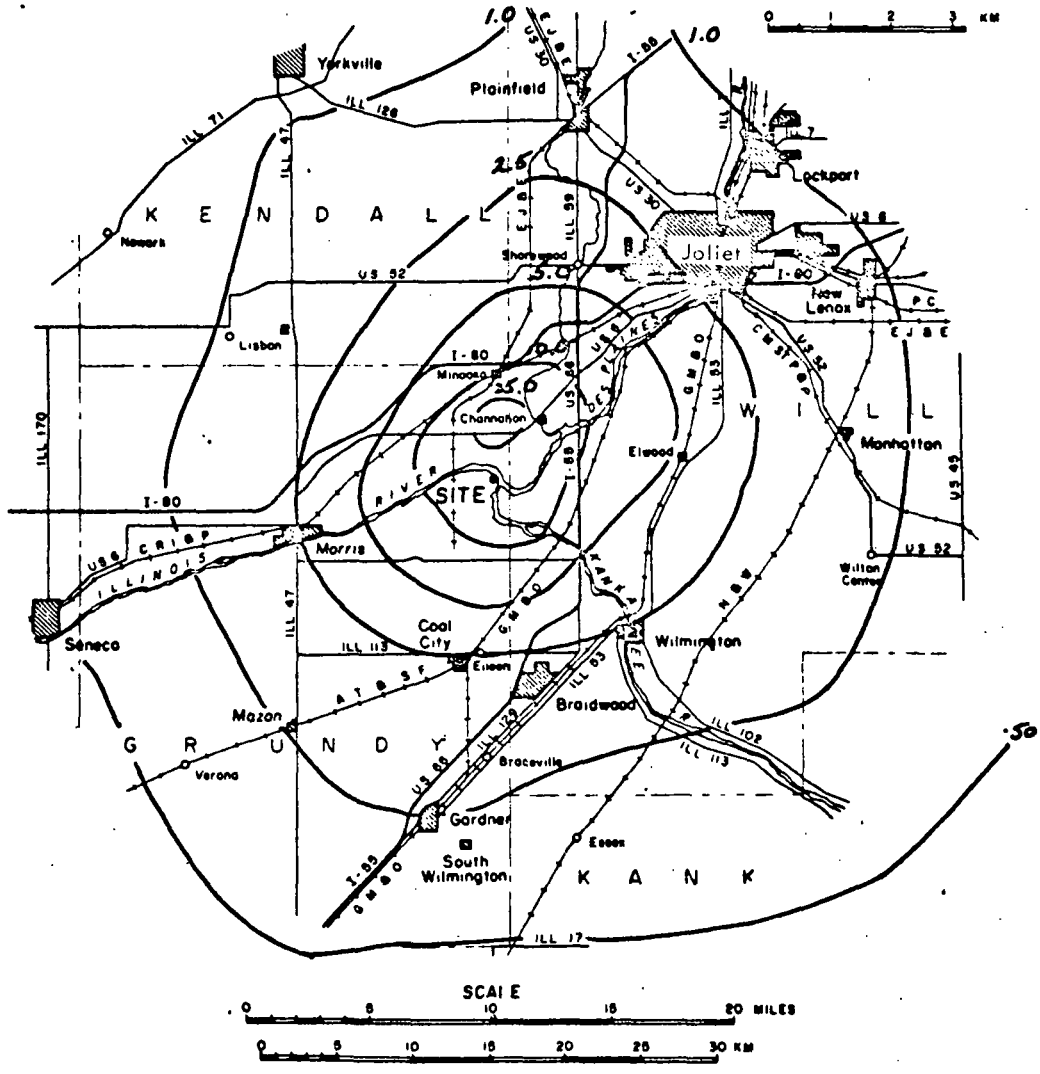


FIGURE 3.1-3

Estimated Total Concentration (pCi /m^3) of Noble Gases from DNPS for the period July-December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^{+3}
Large Figure - Multiply by 10^{+2}

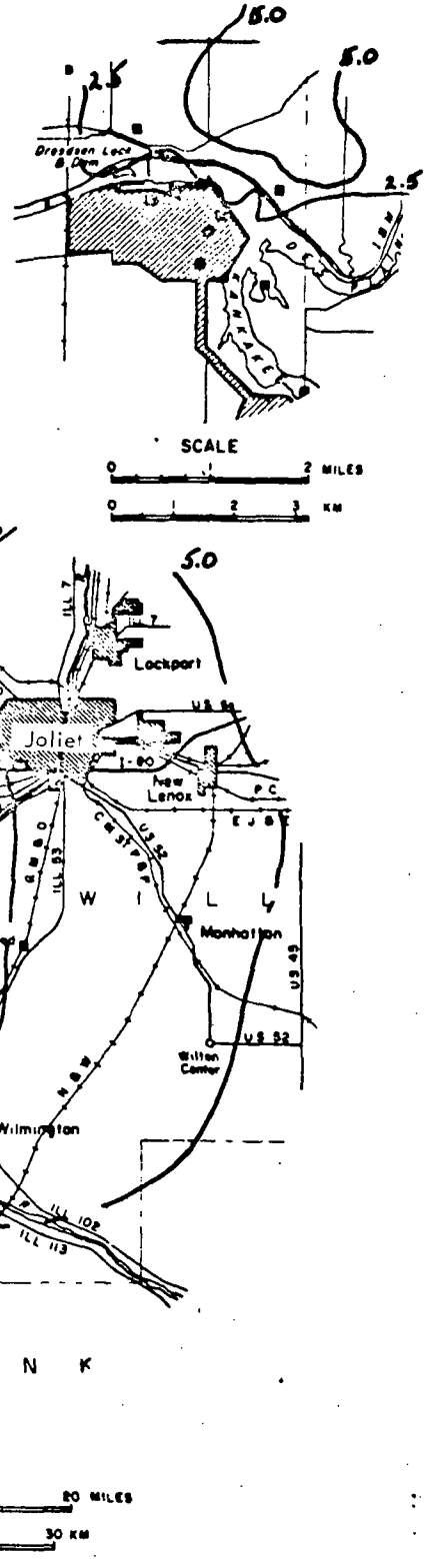


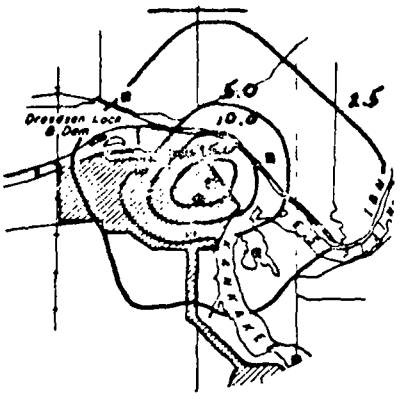
FIGURE 3.1-4

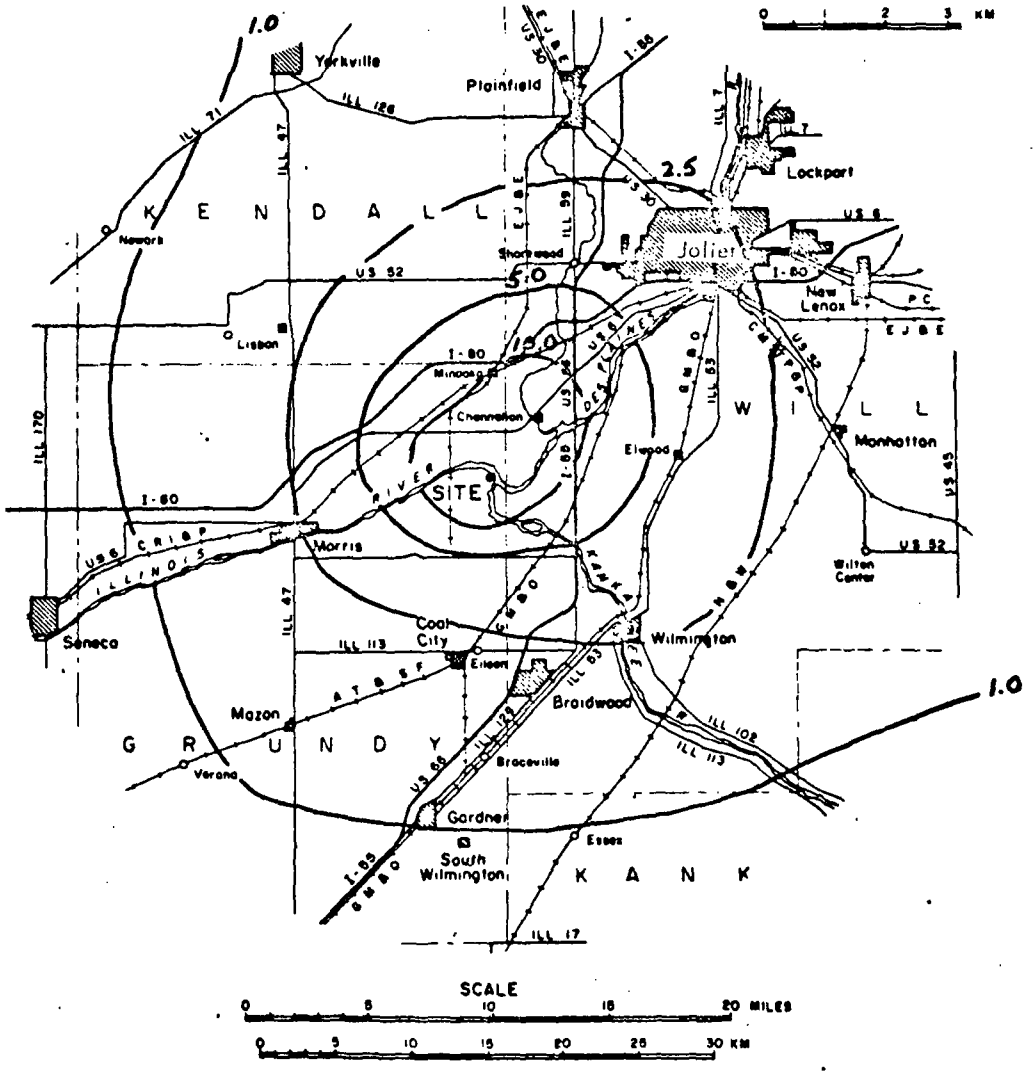
POOR ORIGINAL

Estimated Total Concentration (pCi /m^3) of Noble Gases from DNPS for the period January-December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^{+4}
Large Figure - Multiply by 10^{+3}





3.1.2.1 IODINE-131 CONCENTRATION IN AIR

The calculated concentration contours for I-131 in air are shown in Figures 3.1-5 and 3.1-6. Included in these calculations is an iodine cloud depletion factor which accounts for the phenomenon of elemental iodine deposition on the ground. The maximum off-site six-month average concentration is estimated to be 0.8 pCi/m^3; that for the year is estimated to be 1.0 pCi/m^3.

3.1.2.2 DOSE TO INFANTS THYROID

The hypothetical thyroid dose to an infant living near the plant via inhalation and ingestion of milk was calculated. The radionuclides considered were I-131 and I-133 and the source of milk was taken to be the nearest dairy farm with the cows pastured from April to September. The infant was assumed to live at the point of maximum off-site concentrations of airborne iodine. Under these conditions the maximum infant's thyroid dose was 0.8 mrem during the six-month reporting period, and 1.1 mrem during the year. (Table 3.1-1) The measured I-131 in milk (Section 5.4), most of which is believed to be fallout, results in a child's thyroid dose of less than 1 mrem.

3.1.2.3 DOSE TO ADULT'S THYROID

The thyroid dose via inhalation and ingestion of leafy vegetation to an adult living and working nearby was calculated to be 0.1 mrem during the report period and 0.1 mrem for the year. The radionuclides considered are I-131 and I-133 and the source of the leafy vegetables, such as lettuce, harvested during August, September and October, is taken to be a hypothetical farm existing at the point of maximum X/Q. (Table 3.1-1)

3.1.3 CONCENTRATION OF "PARTICULATES" IN AIR

Concentration contours of radioactive airborne particulates are shown in Figures 3.1-7 and 3.1-8. The maximum off-site average level for the six months and the year is estimated to be 0.07 and 0.7 pCi/m^3, respectively, at the site boundry.

3.1.4 SUMMARY OF DOSES

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

3.2 LIQUID EFFLUENT PATHWAYS

The five principal pathways through the aquatic environment for potential doses to man from liquid waste are drinking water, eating aquatic foods, immersion in water and exposure while boating or 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 tract, thyroid, bone and skin; specific parameters for use in

*Nuclear Regulatory Commission, Proposed A.L.A.P. Regulatory Guides AA through DD, February 1974.

FIGURE 3.1-5

Estimated Total Concentration (pCi /m3) of Iodine from DNPS for the period July - December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^{-2}
Large Figure - Multiply by 10^{-3}

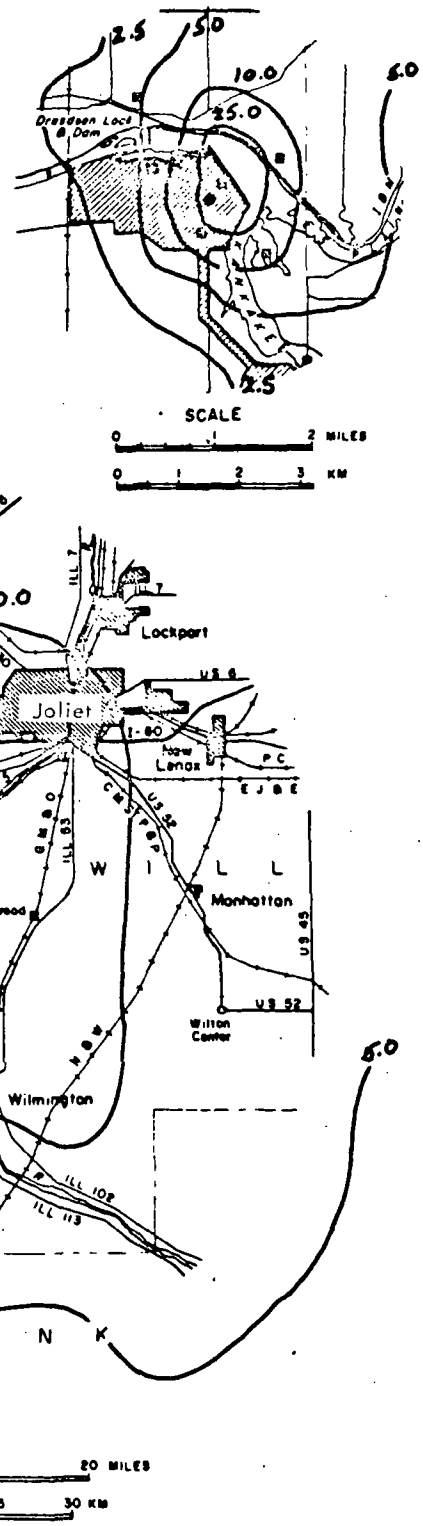
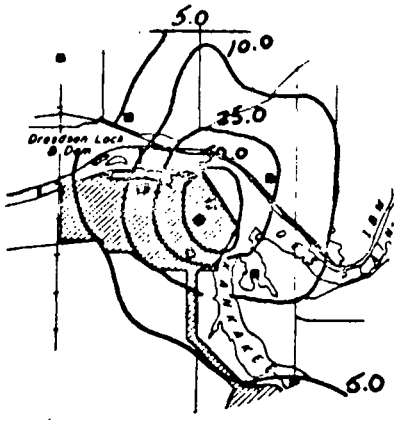


FIGURE 3.1-6

Estimated Total Concentration (pCi/ m^3) of Iodine from DNPS for the period January - December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^{-2}
Large Figure - Multiply by 10^{-3}



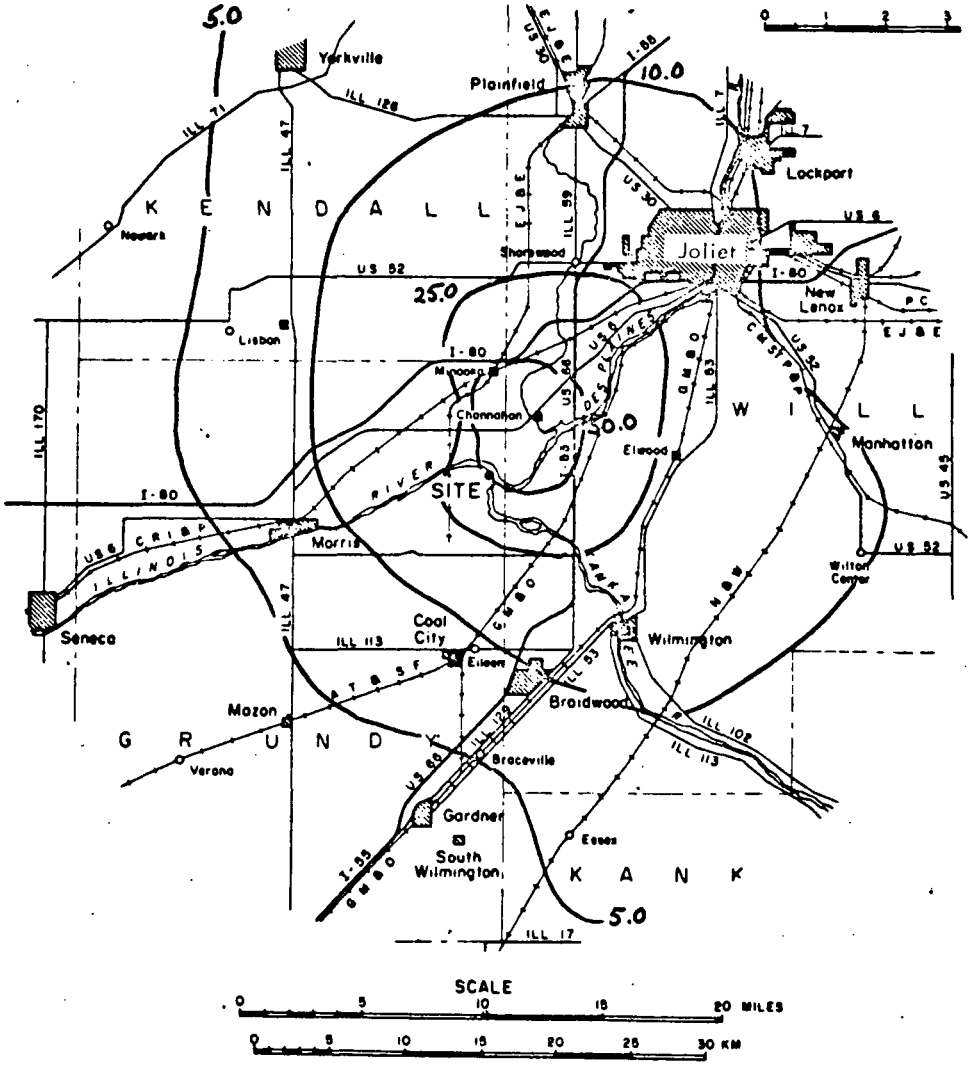


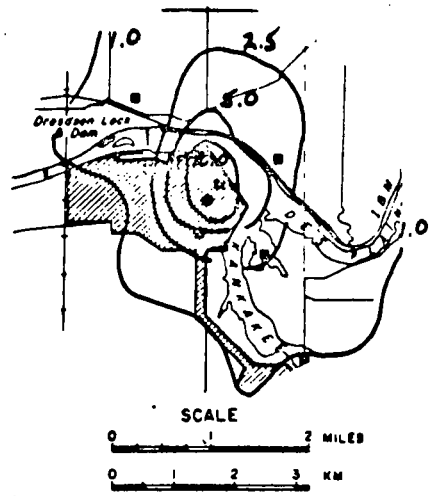
FIGURE 3.1-7

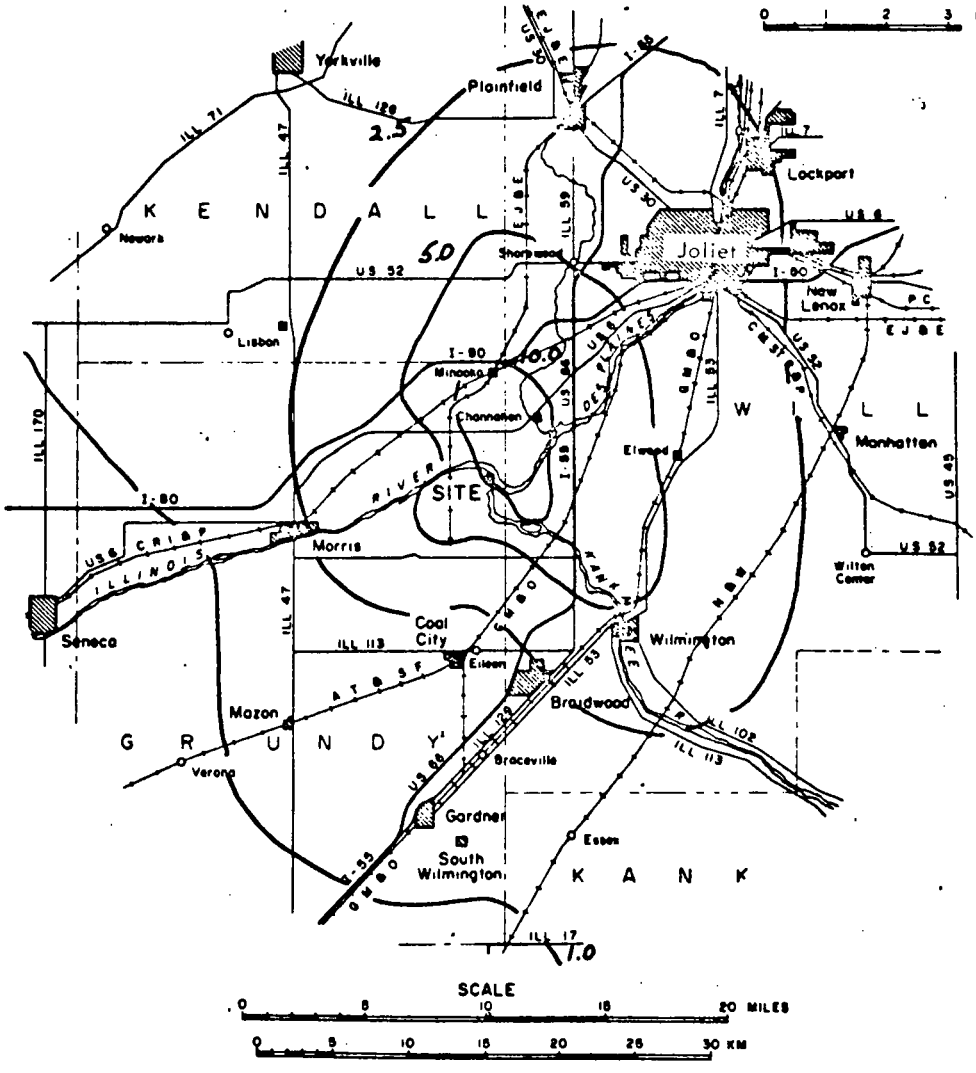
POOR ORIGINAL

Estimated Total Concentration (pCi/m^3) of Particulate Matter from DNPS for the period July-December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^{-2}
Large Figure - Multiply by 10^{-3}





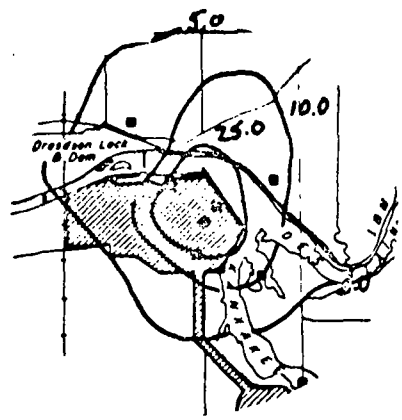
POOR ORIGINAL

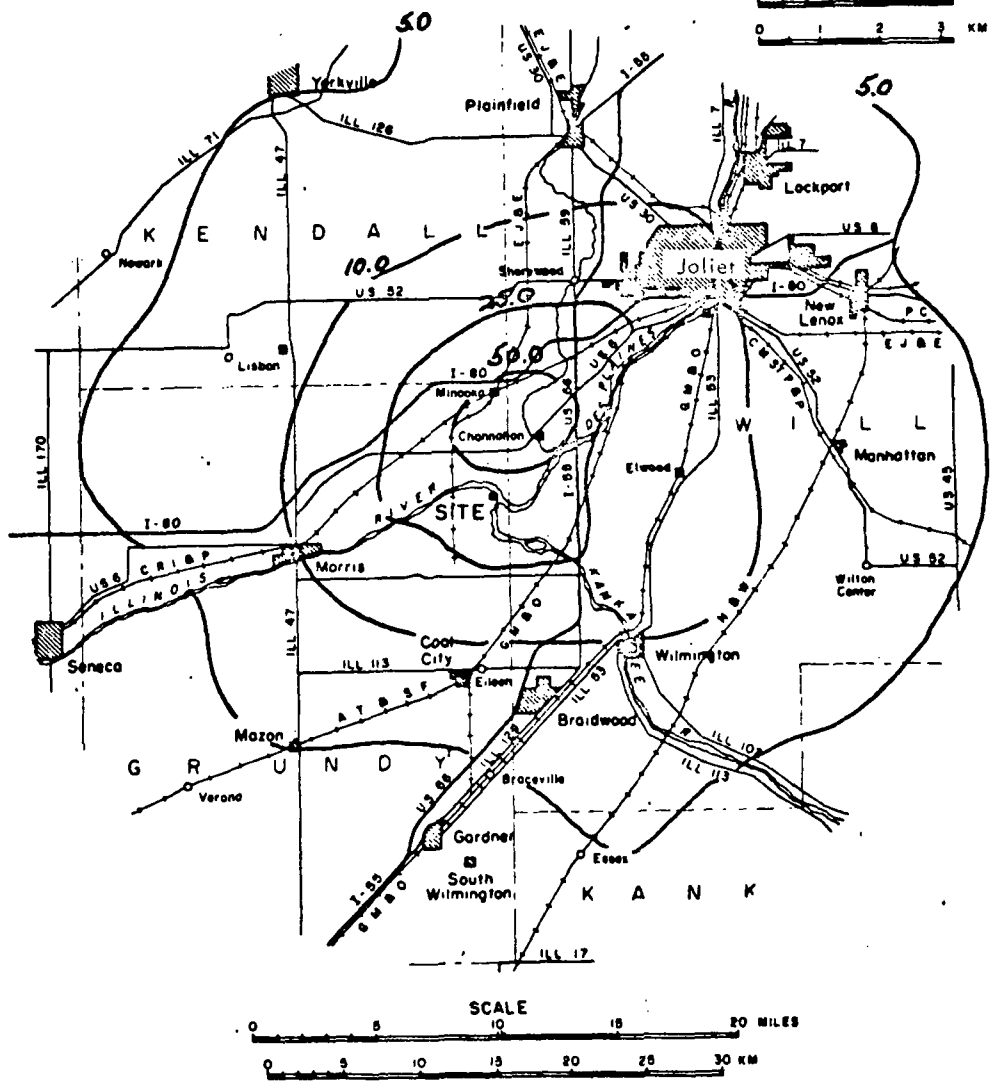
FIGURE 3.1-8

Estimated Total Concentration (pCi/m^3) of Particulate Matter from DNPS for the period January-December 1976.

Isopleth Labels:

Small Figure - Multiply by 10^{-2}
Large Figure - Multiply by 10^{-3}





the equations are given in Table 3.2-1. In general the values of the parameters used were taken from HERMES*, a report which summarizes the living habits of persons in the North Central U.S. These doses are summarized in Tables 3.2-2 and 3.2-3. No organ dose exceeded 0.04 mrem for the year.

4.0 SITE METEOROLOGY

A summary of the site meteorological measurements taken during each calendar quarter of the six-month report period is given in Appendix II. The data are presented as cumulative joint frequency distributions of 35' level wind direction and wind speed class by atmospheric stability class determined from the temperature difference between the 150' and 35' levels. Data recovery for these measurements was 95.8%.

*J. F. Fletcher and W. L. Dotson (compilers), "HERMES-A digital Computer Code for Estimating Regional Radiological Effects from the Nuclear Power Industry," USAEC Report HEDL-TME-71-168, Hanford Engineering Development Laboratory, 1971.

TABLE 3.2-1

VALUES OF PARAMETERS USED TO MAKE DOSE ESTIMATES
RESULTING FROM DRESDEN LIQUID WASTE DISCHARGES

Pathway	Parameter	Unit	Value or Source
Potable Water	M_p	unitless	--
	M_p/F	CFS^{-1}	$1/1.37 \times 10^4$ (a)
	F	CFS	$1.34 \times 10^{-8} F^1$
	F^1	1/m	Station Report
	U_p	1/m	36.6
	Q_i	Ci/m	Station Report
	D_{ipr}	mrem/pCi	Regulatory Guide
	λ_i	hr^{-1}	Table of Isotopes or Other Sources
	t_p	hr	106 (b)
Aquatic Food	M_p	unitless	1/4
	F	CFS	$1.34 \times 10^{-8} F^1$
	F^1	1/m	Station Report
	U_p	kg/m	0.1 (c)
	Q_i, D_{ipr}, λ_i	--	See Potable Water
	B_{ip}	1/kg	Regulatory Guide
	t_p	hr	72 (d)
Shoreline Deposits	M_p, F, Q_i, λ_i	--	See Aquatic Food
	U_p	hr/m	16.6 (e)
	T_i	d	$(.693/\lambda_i) \times 1/24$ d/hr
	W	unitless	0.2
	t_p	hr	0
	t	hr	$(8.76 \times 10^3 (hr/y) \times 30y = 2.63 \times 10^5$
Swimming	M_p, F, Q_i, λ_i	--	See Aquatic Foods
	U_p	hr/m	0 (f)
	D_{ipr}	mrem/hr/pCi/l	Regulatory Guide
	t_p	hr	0
	K_p	unitless	1
Boating	M_p, F, Q_i, λ_i	--	See Aquatic Foods
	U_p	hr/m	0, Nov. to March:47, April to Oct. (g)
	D_{ipr}	mrem/hr/pCi/l	Regulatory Guide
	t_p	hr	0
	K_p	unitless	2

(a) For potable water pathway it is assumed that total mixing in the river has occurred by the time the radioactivity reaches Peoria, 106 miles downstream.
(b) A river flow of 1 mph is assumed; hence t = 106 miles ÷ 1 mph
(c) Based on data from HERMES, pg. 41
(d) HERMES, pg. 118 (e) HERMES, pg. 144
(f) No swimming in Illinois River
(g) HERMES, pg. 144. 29 hr/m =→ 330 hr/yr. 330 hr of boating from April to October is 47 hr/m.

TABLE 3.2-2

DRESDEN-1 NUCLEAR POWER STATION
DOSES RESULTING FROM EXPOSURE
TO RADIOACTIVITY DISCHARGED IN LIQUID WASTE
DECEMBER 1976 AND JANUARY TO DECEMBER 1976

PERIOD	DOSE BY PATHWAY (MREM)								
	INGESTION				SHORELINE		SWIMMING		BOATING
	WHOLE BODY	GI-LLI	THYROID	BONE	SKIN	WHOLE BODY	SKIN	WHOLE BODY	WHOLE BODY
THIS MONTH	.000	.000	0.000	.000	.000	.000	0.000	0.000	0.000
LAST 3 MONTHS	.000	.002	0.000	.000	.000	.000	0.000	0.000	.000
LAST 6 MONTHS	.002	.002	0.000	.002	.001	.001	0.000	0.000	.000
SINCE JANUARY	.004	.003	0.000	.004	.002	.002	0.000	0.000	.000

ORGAN	TOTAL ORGAN DOSE SINCE JANUARY		
	TOTAL DOSE	MAXIMUM ALLOWABLE	PERCENT OF MAXIMUM
WHOLE BODY	.006	500	.001
GI-LLI	.003	1500	.000
THYROID	0.000	1500	0.000
BONE	.004	500	.001
SKIN	.002	3000	.000

TABLE 3.2-3

DRESDEN-2/3 NUCLEAR POWER STATION
DOSES RESULTING FROM EXPOSURE
TO RADIOACTIVITY DISCHARGED IN LIQUID WASTE
DECEMBER 1976 AND JANUARY TO DECEMBER 1976

PERIOD	DOSE BY PATHWAY (MREM)								
	INGESTION				SHORELINE		SWIMMING		BOATING
	WHOLE BODY	GI-LLI	THYROID	BONE	SKIN	WHOLE BODY	SKIN	WHOLE BODY	WHOLE BODY
THIS MONTH	.000	.000	.000	.000	.000	.000	0.000	0.000	0.000
LAST 3 MONTHS	.000	.005	.000	.000	.000	.000	0.000	0.000	0.000
LAST 6 MONTHS	.000	.005	.000	.000	.000	.000	0.000	0.000	.000
SINCE JANUARY	.008	.007	.040	.005	.003	.002	0.000	0.000	.000

TOTAL ORGAN DOSE SINCE JANUARY

ORGAN	TOTAL DOSE	MAXIMUM ALLOWABLE	PERCENT OF MAXIMUM
WHOLE BODY	.010	500	.002
GI-LLI	.007	1500	.000
THYROID	.040	1500	.003
BONE	.005	500	.001
SKIN	.003	3000	.000

5.0 ENVIRONMENTAL MONITORING

Table 5.0-1 provides a summary of the radiological environmental monitoring program as required in the Technical Specifications. Monitoring locations are shown in Figure 5.0-1. The analytical results for each type of measurement and each medium are discussed in the following sections, and listed in Appendix I. Average values for radioactivity in the environment are given in Tables 5.0-2 and 5.0-3.

Nuclear explosions were detonated at the Lop Nor test site in the People's Republic of China on 26 September 1976 and 17 October 1976. Fallout from the first of these events was detected in the Eastern U. S. at considerably above normal levels a few days after the explosion. Radioactive debris was detected in samples collected from the midwestern U. S. in samples collected ten days to two weeks after the event. Since sampled media represent integral collections the debris could have arrived with air masses considerably before the actual collection date.

Major effects of the first explosion were seen in concentrations of radioactivity in air particulates which increased significantly in mid-October and were only returning to the levels normally measured during the late fall months by the end of December.

Effects of the second detonation were either masked by those from the first explosion or not detected at sensitivities employed in this program. Global meteorological processes, device yields, and injection altitudes all effect the temporal and spacial distribution of debris from these events and additional longer lived nuclides may be detected at some later time.

Specific findings for various environmental media are discussed below.

5.1 GAMMA RADIATION

External radiation dose from on-site sources and noble gases released to the atmosphere was measured at eight indicator and nine reference (background) locations using 10 mR ionization (ion) chambers and solid lithium fluoride thermoluminescent dosimeters (TLD). Ion chamber readings are used to provide a weekly indication of variations in exposure rates. Interpretation of these measurements in complicated by changes in background radiation due to snow cover, soil moisture and other natural phenomena. Also the ion chamber readings are affected by temperature, atmospheric pressure, humidity and charge leakage. The ion chambers are not shielded and some of the ion chamber response may not represent total body (penetrating) dose. For these reasons, the TLD readings are considered to provide the best documentation of total body dose for the period. Quarterly TLD readings are given in Table 5.1-1 and weekly ion chamber readings are given in Tables 5.1-2 through 5.1-11 in Appendix I.

A comparison of the TLD results for reference stations with on-site and off-site indicator stations is included in Table 5.1-1. Although a slight difference between the average on-site and off-site values was measured this is mainly due to a higher value from one station (On-Site 2) and not a generally elevated level throughout the site. With the exception of this one station, the small changes which may be due to plant operations are difficult to distinguish from natural background variations. The greatest dose measured at an off-site indicator station was 4.3 mrem with a shielding and occupancy factor of two included.

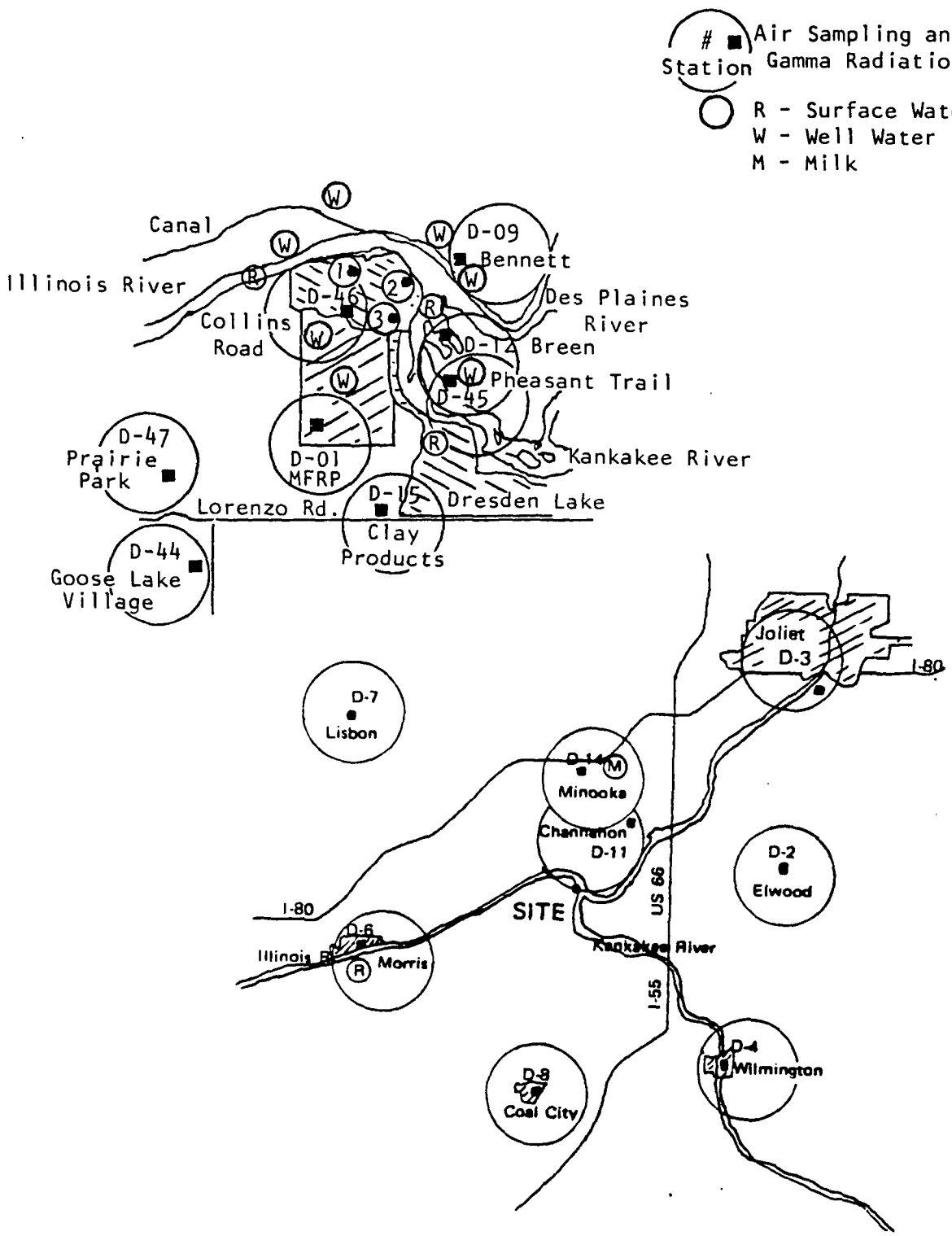


FIGURE 5.0-1 Location of Dresden/MFRP Environmental Monitoring Stations

TABLE 5.0-1

SUMMARY OF RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*
January through June 1976

Medium	Number of Locations	Number of Samples	No. of Unusual[a] Readings	Radiation Attributable to Plant Operation
Direct Radiation	35	731	8	6
Airborne Particulate	17	456	See Section 5.0	0
Airborne I-131	17	235	12	0
Milk	3	73	12(b)	0
Grass	4	59	0	0
Cattle Feed	3	30	0	0
Precipitation	4	28	4(b)	0
Soil	4	26	0	0
Water	22	183	2 (c),(d)	0
Fish	1	4	0	0
Sediment	3	6	0	0
Other Aquatic Biota	6	9	0	0

*Exclusive of special collections reported in Tables of Section 5.8
(a) Does not include on-site stations or ion chamber readings.
(b) Refer to Section 5.0, 5.4 or 5.5.
(c) High solid content and/or possible fresh fallout (see Section 5.0)
(d) I-131 found in inlet and discharge samples on 11/26/76.

TABLE 5.0-2

REPORTING OF RADIOACTIVITY IN THE ENVIRONS

Docket No. 50-10, 50-237, 50-249

Facility: DRESDEN

Reporting Period: Third Quarter 1976

Sampling/Location	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Units
1.0 Water	Gross α (W/G)	Gross β (W/G)	Sr-89 (Q/C')	Sr-90 (Q/C')	H-3 (Q/C')	I-131 (W/C')	10^{-9} µCi/ml
1a Station Cooling Water							
I Discharge Canal-1	2	7	< 5	< 2	360	< 4	
I Discharge Canal-2/3	1	9	< 5	< 2	380	< 4	
B Inlet Canal-1	1	9	< 5	< 2	210	< 4	
1b Surface							
I Illinois River at EJ&E RR Bridge	2	10					
I Illinois River at Morris	NR	10	< 5	2	440	< 4	
I Dresden Lock & Dam	NR	6	< 5	< 1	190	NR	
I Dresden Lake (Pond)	NR	6	< 5	< 1	280	NR	
1c Well		Gross β (Q/G)			H-3 (Q/G)		
I Dresden Lock & Dam		21			NR		
I Dresden Well #1		22			< 100		
I Dresden Well #2		22			< 100		
I Thorsen Farm		8			< 100		
I Anderson Farm		16			NR		
B Bennitt Farm		15			NR		
B Hansel		24			NR		
B Breen		35			NR		
B Olson		20			NR		
B GE-MO-Well		30			< 200		
B Drinking Fountain		18			NR		
1d Precipitation		Gross β (M/C)			H-3 (M/C)		
I On-Site #2		58			290		
B Davidson Farm		29			225		
B Mather Farm		40			415		
B Brandon Lock & Dam		18			270		
2.0 Air	Particulate						
	Gross α (M/C)	Gross β (W/C)			GeLi (M/C')	I-131 (B/C)	10^{-1} [illegible]/cc
I Bennitt Farm	< 0.5	4			< 1	< 3	
I Clay Products	< 0.5	4			< 1	< 3	
I On-Site #1	NR	5			< 1	< 3	
I On-Site #2	NR	5			< 1	< 3	
I On-Site #3	< 0.2	5			< 1	< 3	
I Pheasant Trail	< 0.5	5			< 1	< 3	
I Collins Road	0.2	4			< 1	< 3	
I Prairie Park	NR	4			< 1	< 3	
B Elwood	NR	4			< 1	< 3	
B Joliet	0.2	4			< 1	< 3	
B Wilmington	NR	4			< 1	< 3	
B Morris	0.3	4			< 1	< 3	
B Lisbon	NR	4			< 1	< 3	
B Coal City	0.2	4			< 1	< 3	
B Channahon	NR	4			< 1	< 3	
B Minooka	0.2	4			< 1	< 3	
B Goose Lake Village	< 0.5	4			< 1	< 3	

3.0 Gamma Background	Ion Chambers		TLD	mR/Week mR/Quarter
	Gamma (W/I)	Gamma (Q/I)	Gamma (Q/I)	
I Bennitt Farm	1.9	25	25	
I Clay Products	1.7	22	20	
I On-Site #1	2.0	26	25	
I On-Site #2 Unshielded	3.0	39	38	
I On-Site #3 Shielded	2.4	31	-	
I On-Site #3	2.0	26	31	
I Pheasant Trail	1.9	25	22	
I Prairie Park	1.9	25	21	
I Collins Road	1.8	23	23	
B Elwood	1.9	25	16	
B Joliet	2.1	27	18	
B Wilmington	1.6	21	19	
B Morris	1.7	22	16	
B Lisbon	1.7	22	16	
B Coal City	1.6	21	16	
B Channahon	1.8	23	22	
B Minooka	1.8	23	20	
B Goose Lake Village	1.7	22	19	

(1) Frequency: W-Weekly, M-Monthly, Q-Quarterly, T-Thrice Annually, S-Semi-Annual, A-Annual
Type: G-Grab, C-Continuous, P-Proportional, C'-Composite, I-Integrating.
I-Indicator Stations or Levels. B - Background Stations or Levels.

If all data for a given medium are "<", average is listed as "<" the least sensitive measurement. Where "<" values and finite measurements occur within a series, "<" data are averaged as if they were measured quantities.

TABLE 5.0-2 (Cont'd)

REPORTING OF RADIOACTIVITY IN THE ENVIRONS

Docket No. 50-10, 50-237, 50-249

Facility: DRESDEN

Reporting Period: Third Quarter 1976

Sampling/Location	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Units
4.0 Milk		Sr-89 (M/C')	Sr-90 (M/C')	Cs-137 (M/C')	H-3 (S/G)	I-131 (W/G)	10^{-9} µCi/ml
I Davidson Farm		< 5	5	< 5	240	< 0.5	
I Dorin Farm		< 5	5	< 5	350	< 0.5	
B Mather Farm		< 5	5	< 5	200	< 0.5	
5.0 Sediment	Gross β (Q/C)	Sr-89 (S/G)	Sr-90 (Q/G)		GeLi (S/G)		10^{-3} µCi/kg
I Dresden Lock & Dam	3	< 2	< 1		< 1		
B Kankakee River	1	< 2	< 1		< 1		
B DesPlaines River	3	< 2	< 1		< 1		
6.0 Periphyton	Gross β (T/G)				GeLi (S/G)		
I Dresden Lock & Dam	52				< 1		
B Kankakee River	42				< 1		
B DesPlaines River	65				< 1		
7.0 Fish	Gross β (S/G)	Sr-89 (T/G)	Sr-90 (T/G)		GeLi (T/G)		
I Dresden Lock & Dam	7	< 2	< 1		< 0.1		
8.0 Grass	Gross β (M/G)	Sr-89 (M/G)	Sr-90 (M/G)		GeLi (M/G)		
I Davidson Farm	8	< 2	< 1		< 1		
I Dorin Farm	8	< 2	< 1		< 1		
B Mather Farm	10	< 2	< 1		< 1		
9.0 Cattle Feed & Hay	Gross β (M/S)	Sr-89 (M/S)	Sr-90 (M/S)			I-131 (A/G)	10^{-3} µCi/kg
I Davidson Farm	4	< 2	< 1			< 1	
I Dorin Farm	7	< 2	< 1			< 1	
B Mather Farm	4	< 2	< 1			< 1	
10.0 Vegetables	Gross β (M/G)	Sr-89 (A/G)	Sr-90 (A/G)		GeLi (A/G)		
Glasscock	2	< 2	< 1		< 1		
Girot	2	< 2	< 1		< 1		
Phillips	2	< 2	< 1		< 1		
Rousonellis	3	< 2	< 1		< 1		
11.0 Soil	Gross β (Q/G)	Sr-89 (Q/G)	Sr-90 (Q/G)		GeLi (A/G)		
I Davidson Farm	4	< 2	< 1		< 1		
I Thorsen Farm	9	< 2	< 1		< 1		
I Mather Farm	4	< 2	< 1		< 1		
I Dorin Farm	4	< 2	< 1		< 1		
12.0 Aquatic Plants	Gross β (Q/G)	Sr-89 (Q/G)	Sr-90 (Q/G)		GeLi (S/G)		
I Discharge Canal-1	6	< 2	< 1		< 1		
B Inlet Canal	4	< 2	< 1		< 1		
I Discharge Canal-2/3	30	< 2	< 1		See Discussion		

(1) Frequency: W-Weekly, B-Bi-Weekly, M-Monthly, Q-Quarterly, T-Thrice Annually, S-Semi-Annual, A-Annual
Type: G-Grab, C-Continuous, P-Proportional, C'-Composite, I-Integrating

I - Indicator Stations or Levels.
B - Background Stations or Levels.

If all data for a given medium are "<", average is listed as "<" the least sensitive measurement. Where "<" values and finite measurements occur within a series, "<" data are averaged as if they were measured quantities.

TABLE 5.0-3

REPORTING OF RADIOACTIVITY IN THE ENVIRONS

Docket No. 50-10, 50-237, 50-249

Facility: DRESDEN

Reporting Period: Fourth Quarter, 1976

Sampling/Location	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Units
1.0 Water	Gross α (W/G)	Gross β (W/G)	Sr-89 (Q/C')	Sr-90 (Q/C')	H-3 (Q/C')	I-131 (W/C')	10^{-9} uCi/ml
1a Station Cooling Water							
I Discharge Canal-1	1	7	< 5	< 2	470	< 4	
I Discharge Canal-2/3	3	8	< 5	< 2	590	< 4	
B Inlet Canal-1	2	7	< 5	< 2	360	< 4	
1b Surface							
I Illinois River at EJ&E RR Bridge	3	7	< 5	< 2	720	< 4	
I Illinois River at Morris	NR	8	NR	NR	NR	NR	
I Dresden Lock & Dam	NR	6	< 5	< 2	NR	NR	
I Dresden Lake (Pond)	NR	10	NR	NR	< 240	NR	
1c Well		Gross β (Q/G)			H-3 (Q/G)		
I Dresden Lock & Dam		22					
I Dresden Well #1		25			200		
I Dresden Well #2		38			< 200		
I Thorsen Farm		4			360		
I Anderson Farm		23			NR		
B Bennitt Farm		9			NR		
B Hansel		13			NR		
B Breen		16			NR		
B Olson		20			NR		
B GE-MO-Well		22			< 200		
B Drinking Fountain		27			NR		
1d Precipitation		Gross β (M/C)			H-3 (M/C)		
I On-Site #2		284			160		
B Davidson Farm		231			190		
B Mather Farm		67			200		
B Brandon Lock & Dam		61			190		

2.0 Air	Particulate					
	Gross α (M/C)	Gross β (W/C)	GeLi (M/C')	I-131 (B/C)	10	/cc
I Bennitt Farm	0.2	13	< 1	< 3		
I Clay Products	0.4	13	< 1	< 3		
I On-Site #1	NR	16	< 1	< 3		
I On-Site #2	NR	18	< 1	< 3		
I On-Site #3	0.8	12	< 1	< 3		
I Pheasant Trail	0.3	14	< 1	< 3		
I Collins Road	0.2	12	< 1	< 3		
I Prairie Park	NR	14	< 1	< 3		
B Elwood	NR	14	< 1	< 3		
B Joliet	0.4	14	< 1	< 3		
B Wilmington	NR	14	< 1	< 3		
B Morris	0.3	12	< 1	< 3		
B Lisbon	NR	12	< 1	< 3		
B Coal City	0.2	12	< 1	< 3		
B Channahon	NR	13	< 1	< 3		
B Minooka	0.2	15	< 1	< 3		
B Goose Lake Village	0.2	14	< 1	< 3		

3.0 Gamma Background	Ion Chambers		TLD	mR/Week mR/Quarter
	Gamma (W/I)	Gamma (Q/I)	Gamma (Q/I)	
I Bennitt Farm	1.9	25	18	
I Clay Products	2.0	26	16	
I On-Site #1	2.3	30	17	
I On-Site #2 Unshielded	2.5	33	23	
I On-Site #2 Shielded	2.2	29	-	
I On-Site #3	2.0	26	23	
I Pheasant Trail	1.9	25	22	
I Prairie Park	1.9	25	17	
I Collins Road	1.9	25	18	
B Elwood	2.1	27	14	
B Joliet	2.2	29	16	
B Wilmington	2.0	26	17	
B Morris	1.8	23	15	
B Lisbon	1.8	23	15	
B Coal City	1.7	22	15	
B Channahon	1.9	25	17	
B Minooka	1.8	23	16	
B Goose Lake Village	1.8	23	17	

(1) Frequency: W-Weekly, M-Monthly, Q-Quarterly, T-Thrice Annually, S-Semi-Annual, A-Annual
Type: G-Grab, C-Continuous, P-Proportional, C'-Composite, I-Integrating.
I-Indicator Stations or Levels. B - Background Stations or Levels.

If all data for a given medium are "<", average is listed as "<" the least sensitive measurement. Where "<" values and finite measurements occur within a series, "<" data are averaged as if they were measured quantities.

TABLE 5.0-3 (Cont'd)

REPORTING OF RADIOACTIVITY IN THE ENVIRONS

Docket No. 50-10, 50-237, 50-249

Facility: DRESDEN

Reporting Period: Fourth Quarter 1976

Sampling/Location	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Entity (Freq/Type)(1) Results	Units
4.0 Milk		Sr-89 (M/C')	Sr-90 (M/C')	Cs-137 (M/C')	H-3 (S/G)	I-131 (W/G)	10^{-9} µCi/ml
I Davidson Farm		< 5	2	< 5	NR	See Discussion	
I Dorin Farm		< 5	6	< 5	NR	"	
B Mather Farm		< 5	4	< 5	NR	"	
5.0 Sediment	Gross β (Q/C)	Sr-89 (S/G)	Sr-90 (Q/G)		GeLi (S/G)		10^{-3} µCi/kg
I Dresden Lock & Dam	6	< 2	< 1		< 1		
B Kankakee River	< 1	< 2	< 1		< 1		
B DesPlaines River	3	< 2	< 1		< 1		
6.0 Periphyton	Gross β (T/G)				GeLi (S/G)		
I Dresden Lock & Dam	6				NR		
B Kankakee River	15				NR		
B DesPlaines River	14				NR		
7.0 Fish	Gross β (S/G)	Sr-89 (T/G)	Sr-90 (T/G)		GeLi (T/G)		
I Dresden Lock & Dam		NOT REQUIRED THIS PERIOD					
8.0 Grass	Gross β (M/G)	Sr-89 (M/G)	Sr-90 (M/G)		GeLi (M/G)		
I Davidson Farm	15	< 2	< 1		< 1		
I Dorin Farm	7	< 2	< 1		< 1		
B Mather Farm	6	< 2	< 1		< 1		
9 [illegible]ttle Feed & Hay	Gross β (M/S)	Sr-89 (M/S)	Sr-90 (M/S)		GeLi (M/G)	I-131 (A/G)	10^{-3} µCi/kg
[illegible] Davidson Farm	7	< 2	< 1		< 1	< 1	
I Dorin Farm	9	< 2	< 1		< 1	< 1	
B Mather Farm	4	< 2	< 1		< 1	< 1	
10.0 Vegetables	Gross β (M/G)	Sr-89 (A/G)	Sr-90 (A/G)		GeLi (A/G)		
Glasscock		NOT REQUIRED THIS PERIOD					
Girot		" "	" "				
Phillips		" "	" "				
Dorin		" "	" "				
Rousonellis		" "	" "				
11.0 Soil	Gross β (Q/G)	Sr-89 (Q/G)	Sr-90 (Q/G)		GeLi (Q/G)		
I Davidson Farm	5	< 2	< 1		< 1		
I Thorsen Farm	8	< 2	< 1		< 1		
I Mather Farm	6	< 2	< 1		< 1		
I Dorin Farm	5	< 2	< 1		< 1		
12.0 Aquatic Plants	Gross β (Q/G)	Sr-89 (Q/G)	Sr-90 (Q/G)		GeLi (S/G)		
I Discharge Canal-1		NOT REQUIRED THIS PERIOD					
B Inlet Canal		" "	" "				
I Discharge Canal-2/3		" "	" "				

(1) Frequency: W-Weekly, B-Bi-Weekly, M-Monthly, Q-Quarterly, T-Thrice Annually, S-Semi-Annual, A-Annual
Type: G-Grab, C-Continuous, P-Proportional, C'-Composite, I-Integrating

I - Indicator Stations or Levels.
B - Background Stations or Levels.

If all data for a given medium are "<", average is listed as "<" the least sensitive measurement. Where "<" values and finite measurements occur within a [illegible], "<" data are averaged as if they were measured quantities.

5.2 AIRBORNE I-131 AND PARTICULATE RADIOACTIVITY

Concentrations of airborne I-131 and particulate radioactivity at monitoring locations are listed in Tables 5.2-1 through 5.2-8 (Appendix I). The locations of these air samplers are the same as for direct radiation measurements, shown in Figure 5.0-1. Airborne I-131 remained below 0.03 pCi/m^3.

Concentrations of gross alpha radioactivity associated with airborne particulate matter (after decay of natural radon daughters) remained below 0.01 pCi/m^3. Beta radioactivity in air particulate samples ranged from about 0.02 to 0.08 pCi/m^3, which is the usual range for late summer - early winter samples, until debris from the Chinese nuclear explosions was detected in mid-October (see above). From mid-October through mid-November gross beta concentrations in air particulates increased to measurements as high as 0.66 pCi/m^3 and then began to decrease to an average of around 0.1 pCi/m^3 in filters collected during the end of the year.

An unusual effect observed here and other stations throughout the midwest was the wide range of concentrations of beta emitters in samples for the same time interval at different stations. This phenomenon is attributed to the presence of relatively large particles of radioactive debris from the first test. The validity of the measurements and this observation has been confirmed by individual nuclide measurements of individual filters at other stations.

The weekly average gross beta concentrations in air are plotted in Figure 5.2-1. Plotted are averages where the three on-site stations are considered as one group, stations 0 to 5 miles from the plant as another group, and stations more than five miles distant as a third group. No contribution from plant operation was measured. Gamma isotopic analyses of composites of air particulate filters indicated the presence only of naturally occurring Be-7 at concentrations above the sensitivity requirements of the program for both indicator and background stations. The October, November and December composites for both groups of samples contained gamma emitters, chiefly Ce-141, Ru-103, Rh-102, Zr-Nb-95, in concentrations below program sensitivities and not further quantified. These nuclides are characteristic of the debris from the above mentioned tests. Radioactivity listed in Tables 5.2-7 and 5.2-8, Appendix I.

5.3 AQUATIC RADIOACTIVITY

Surface water samples were collected daily and composited for analysis weekly for the Unit 1 Inlet Canal, Unit 1 Discharge Canal and Units 2 and 3 Discharge Canal. Weekly grab samples were taken from Dresden Lake and the Illinois River at the EJ and E Railroad Bridge. A twice per month composite sample made from daily aliquots of Illinois River water was collected at Morris, Illinois. A quarterly grab sample was taken from the Corps of Engineers Goose Lake Pumping Station on the Kankakee River. For gross alpha and gross beta analysis a 250 ml sample is processed. High dissolved solids in a sample require that a smaller volume be analyzed to minimize self-absorption problems in counting. Analytical results for gross alpha, gross beta, I-131, tritium, gamma emitters, Sr-89 and Sr-90 shown in Tables 5.3-1 through 5.3-3 do not indicate any measurable radioactivity attributable to plant operation.

No activity attributable to plant operations was detected in sediment or aquatic biota samples. The results of analyses are shown on Tables 5.3-6 through 5.3-9.

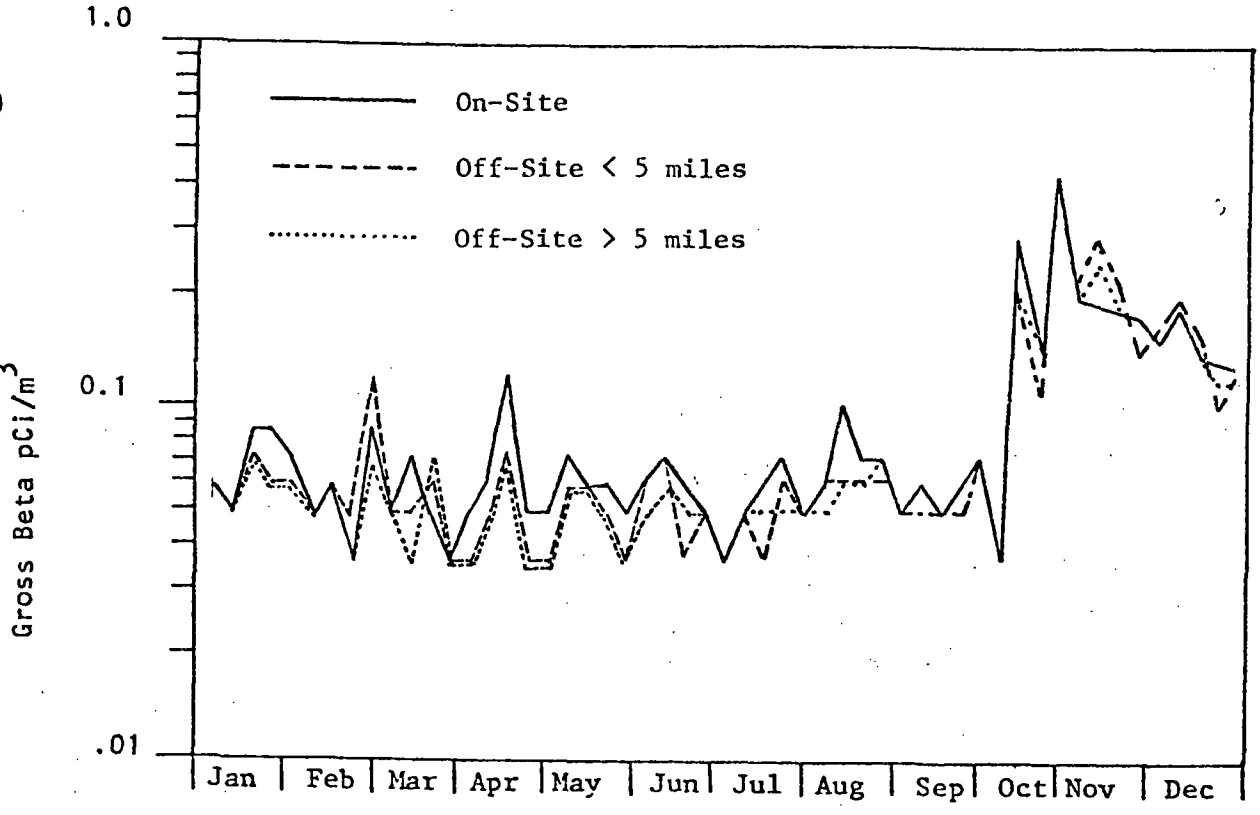


FIGURE 5.2-1 GROSS BETA IN WEEKLY AIR PARTICULATE FILTERS.

5.4 MILK, GRASS AND CATTLEFEED

Milk samples were collected weekly from the Davidson Farm located five miles northeast of Dresden, the Dorin Farm located about 10 miles south of the station and the Mather Farm (background station) located more than 10 miles N.E. of Dresden. I-131 was determined for each sample by gamma spectrometry or chemical separation of I^- and beta counting. Gamma emitters were measured by gamma spectrometry (GeLi). For I-131 analysis a four liter sample is processed; for Sr-89, Sr-90 one liter is used, and three liters are analyzed for gamma emitters. Sr-89 and Sr-90 were determined by radiochemistry and low background beta counting, and Cs-137 by radiochemical separation and/or gamma (GeLi) spectrometry. The analytical results are given in Table 5.4-1 and 5.4-2. Elevated concentrations of I-131 in milk were measured from early October through early November. This activity is attributed to debris from the Chinese nuclear tests (See section 5.0) and agrees in temporal distribution with similar observations throughout the midwest. There was no radioactivity attributable to plant operations. The only radionuclides present in measurable amounts were Sr-90 from worldwide fallout and natural K-40. The concentrations of Sr-90 were within expected ranges and are not attributable to plant operation.

5.4 MILK, GRASS AND CATTLEFEED (Cont'd)

When milk cows were on pasture, grass samples were collected weekly from the same dairy farms that supply the milk samples. During the winter months, cattlefeed samples were collected instead of pasture grass. These grass and cattlefeed samples were analyzed for gross beta, Sr-90, Sr-89 and gamma emitters (spectrometry by GeLi). Because fallout Sr-90 and Cs-137 are present, the best indicator radionuclides are Sr-89, I-131, Cs-134 and Ba-140. These radionuclides were not detected in any of the samples. The results are given in Tables 5.4-3 and 5.4-4.

5.5 TERRESTRIAL DEPOSITION (Rainwater and Soil)

Radioactivity deposited on the surface of the ground was sampled using 6-inch diameter collectors for precipitation and dry deposition. These samples are analyzed for gross beta. The results are summarized in Table 5.5-1. Slightly elevated concentrations attributable to fallout (See 5.0) were measured in October and November samples. Radioactivity in soil given in Table 5.5-2, does not indicate a significant difference in the results for indicator and background stations, and except for traces of fallout materials, only naturally occurring radionuclides were detected.

5.6 VEGETABLES

Vegetables were collected from farms between 2 and 12 miles of the station. Analytical data listed in Table 5.6-1 (Appendix I), indicate the presence of no radioactivity due to station operations.

5.7 GROUND WATER

Well water samples, collected monthly from the Dresden Lock and Dam drinking fountain and quarterly from other wells, showed no indication of increases in radioactivity attributable to operation of the Dresden Station. The well water data are given in Table 5.7-1.

5.8 SPECIAL COLLECTIONS

5.8-1 On July 25 to July 31, 1976; August 22 to 25, 1976; September 12 to 15, 1976; October 7 to 9, 1976; November 11 to 17, 1976; December 9 to 14, 1976, airborne radioiodine plus particulate effluents exceeded 33%, but not 100% of the limits in Technical Specification section 3.8.A.a. Special collections of grass and soil were made on August 7, 1976: September 11, 1976; September 25, 1976; December 4, 1976; December 24, 1976. The special collection on December 4, 1976 was snow rather than grass because a recent snowfall covered the ground. Gross beta and gamma isotopic analysis of these special collections did not reveal the presence of radioactivity attributable to station operations (Table 5.8-1). Routine samples (air particulate filters, ion chamber readings, surface water, etc.) collected shortly thereafter also revealed normal concentrations of natural and weapons testing fallout radioactivity.

5.8 SPECIAL COLLECTIONS (Cont'd)

5.8-2 On July 31, 1975, a 30 ft. well was installed in bore 1 drilled on the east side of the Unit 1 Radwaste Facility (see Figure 5.8-1). A special sampling program was established to monitor the elevation of ground water and concentration of radioactivity in the water taken from the area around the T-112, T-113 resin vaults. The results of the samples are shown in Table 5.8-2. To date, the results are not conclusive, but it does appear that most activity is on suspended material and is thus not readily migratable. "Organics" in the water are complicating the analytical efforts. The measurement of ground water elevation has been discontinued. Measurements of radioactivity in quarterly samples will continue for an indefinite period.

5.8-3 Following soil excavation for the new D-1 HPCI and Waste Treatment Facilities radiation surveys of the sandstone bedrock within the restricted area indicated that radioactivity contamination was present. Consequently, approximately 50,000 ft^3 of soil containing 1.2 Ci were removed from this area and shipped to Barnwell, S. C. The activity, the composition of which is Cs-137 43%, Co-60 46%, Cs-134 10% and Mn-54 1%, in the remaining soil and sandstone is estimated to be approximately 0.1 Ci. Radiological decay will reduce this to 0.02 Ci in 30 years. (See table 5.8-3, Appendix I).

6.0 ANALYTICAL PROCEDURES

A summary of the procedures used for analyzing radioactivity in environmental samples is given in Appendix III of the report for the period January through June 1975. Procedures used during the period covered by this report remain unchanged.

7.0 OCCUPATIONAL PERSONNEL RADIATION EXPOSURE

Occupational personnel radiation exposure data for the January - December period are given in Appendix III.

8.0 ADDITIONAL ENVIRONMENTAL DATA FOR THE PERIOD JANUARY - JUNE 1976

See Table 8.0-1, Appendix I

9.0 ERRATA TO JANUARY THROUGH JUNE 1976 REPORT

Month		Reported	Should Be
January	U-1 I. Gaseous effluents		
	1. a) total release*	2.8 E+02	2.0 E+03
January	2. Iodine releases		
	a) Isotope I-131*	2.7 E-03	2.2 E-04
April	3. Particulate releases		
	a) Gross Radioactivity	6.9 E-02	5.7 E-02
	Six-Month total	2.8 E-01	2.7 E-01
	Solid Waste Shipped Off-Site		
	I-2. Dry compressible waste		
January	b) Radioactivity	6.2 E+00	3.9 E+00
April	b) Radioactivity	3.6 E+00	3.6 E+01
	Six-Month total	2.2 E+01	5.2 E+01

*Six-month total not effected.

APPENDIX I

ANALYTICAL DATA

TABLE 5.1-1

GAMMA RADIATION

Average mR/week Using Thermoluminescent Dosimeters

Location		3rd Quarter	4th Quarter	Six-Month Average July - December	Annual
Date Annealed:		07/07/76	10/05/76	NA	02/06/76
Date Read:		10/11/76	1/05/77	NA	01/04/77
On-Site Indicator Stations					
D-16 On-Site 1	A	1.91 ± .46(a)	1.32 ± .14(a)	1.61 ± 0.30	1.08 ± 0.26
D-17 On-Site 2	B	2.92 ± .37(a)	1.79 ± .37(a)	2.35 ± 0.37	1.74 ± 0.15
D-18 On-Site 3	C	2.39 ± .29(a)	1.76 ± .14(a)	2.07 ± 0.28	1.40 ± 0.19
D-46 Collins Road	CR	1.78 ± .21(a)	1.42 ± .10(a)	1.60 ± 0.15	1.17 ± 0.09
Average		2.25 ± .33	1.57 ± .18	1.91 ± 0.28	1.35 ± 0.17
Off-Site Indicator Stations					
D-09 Bennitt Farm	BE	1.93 ± .29(b)	1.40 ± .35(b)	1.66 ± 0.32	1.14 ± 0.10
D-15 Clay Products	J21	1.53 ± .48(b)	1.22 ± .25	1.37 ± 0.36	0.98 ± 0.14
D-45 Pheasant Trail	PT	1.68 ± .07(b)	1.67 ± .29(b)	1.67 ± 0.18	0.99 ± 0.15
D-47 Prairie Park	PP	1.58 ± .16(b)	1.29 ± .23	1.39 ± 0.19	0.93 ± 0.09
Average		1.68 ± .25	1.40 ± .28	1.52 ± 0.26	1.01 ± 0.12
Background Stations					
D-02 Elwood	J15	1.23 ± .13	1.04 ± .16	1.13 ± 0.26	0.91 ± 0.05
D-03 Joliet Brandon Rd.	J48	1.39 ± .09	1.26 ± .10	1.32 ± 0.09	0.91 ± 0.04
D-04 Wilmington	464	1.43 ± .19	1.27 ± .24	1.35 ± 0.21	0.85 ± 0.10
D-06 Morris	J16	1.23 ± .18	1.18 ± .09	1.20 ± 0.13	0.79 ± 0.09
D-07 Lisbon	J24	1.25 ± .12	1.15 ± .19	1.20 ± 0.15	0.78 ± 0.08
D-08 Coal City	J68	1.22 ± .16	1.12 ± .18	1.17 ± 0.17	0.72 ± 0.12
D-11 Channahon	CH	1.67 ± .12(c)	1.28 ± .17	1.47 ± 0.14	0.82 ± 0.08
D-14 Minooka	J27	1.51 ± .19(c)	1.20 ± .18	1.35 ± 0.18	1.03 ± 0.06
D-44 Goose Lake Village	GLV	1.46 ± .30	1.33 ± .29	1.39 ± 0.29	1.01 ± 0.15
Average		1.37 ± .16	1.20 ± .18	1.29 ± 0.18	0.87 ± 0.09

(a) Unusual reading due to station operation.
(b) Unusual reading possibly due to station operation.
(c) Unusual reading not thought to be due to station operation.

IONIZATION CHAMBER READINGS
Indicator Stations

Week Ending	D-09 Serial Number	mR	BENNITT FARM Serial Number	mR	BE mR/Week	D-15 Serial Number	mR	CLAY PRODUCTS Serial Number	mR	J21 mR/Week
07/03/76	2458	(a)	2557	(a)	-	2728	(a)	2734	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	4.5	"	5.0	1.5	"	4.5	"	4.6	1.5
07/24/76	"	2.0	"	2.0	2.0	"	1.5	"	1.4	1.4
07/31/76	"	1.8	"	1.9	1.8	"	1.7	"	1.8	1.7
08/07/76	"	2.1	"	2.5	2.1	"	1.7	"	2.0	1.7
08/13/76	"	1.8	"	1.9	2.1	"	1.4	"	1.5	1.6
08/21/76	"	2.2	"	2.5	1.9	"	2.0	"	2.0	1.8
08/29/76	"	2.5	"	2.3	2.0	"	2.0	"	2.0	1.8
09/04/76	"	1.4	"	1.5	1.6	"	1.5	"	1.7	1.7
09/11/76	"	1.9	"	1.8	1.8	"	2.0	"	2.0	2.0
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	6.1	"	6.2	2.0	"	5.5	"	5.8	1.8
10/09/76	"	1.5	"	1.4	1.6	"	2.0	"	2.0	2.3
10/16/76	"	1.8	"	2.0	1.8	"	1.6	"	1.7	1.6
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	6.1	"	5.8	1.8	"	5.8	"	6.0	1.8
11/13/76	"	1.5	"	4.6	1.7	"	1.8	"	1.8	2.1
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	4.5	"	4.7	2.2	"	3.7	"	3.7	1.9
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	4.5	"	4.6	2.1	"	4.5	"	4.6	2.1
12/18/76	"	2.0	"	2.0	2.0	"	2.0	"	2.3	2.0
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

TABLE 5.1-3

IONIZATION CHAMBER READINGS
Indicator Stations

Week Ending	D-16 Serial Number	mR	ON-SITE STATION #1 A Serial Number	mR	mR/Week	D-18 Serial Number	mR	ON-SITE STATION #3 C Serial Number	mR	mR/Week
07/03/76	2613	(a)	2530	(a)	-	2472	(a)	2436	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	5.1	"	5.0	1.7	"	5.0	"	5.0	1.7
07/24/76	"	1.8	"	1.8	1.8	"	1.5	"	1.5	1.5
07/31/76	"	2.5	"	2.5	2.5	"	1.9	"	2.0	1.9
08/07/76	"	2.0	"	2.3	2.0	"	2.0	"	2.3	2.0
08/13/76	"	1.7	"	1.6	1.9	"	1.9	"	1.9	2.2
08/21/76	"	3.0	"	3.0	2.6	"	3.0	"	3.2	2.6
08/29/76	"	2.3	"	2.3	2.0	"	3.0	"	2.7	2.4
09/04/76	"	1.7	"	1.7	2.0	"	1.7	"	3.0	2.0
09/11/76	"	1.9	"	1.9	1.9	"	2.0	"	1.9	1.9
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	6.5	"	7.8	2.2	"	7.6	"	7.7	2.5
10/09/76	"	1.7	"	1.7	2.0	"	2.5	"	2.5	2.9
10/16/76	"	2.6	"	2.7	2.6	"	2.0	"	2.2	2.0
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	7.0	"	6.5	2.0	"	8.2	"	8.2	2.6
11/13/76	"	1.6	"	4.0	1.9	"	1.7	"	1.8	2.0
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	5.0	"	5.5	2.5	"	4.7	"	4.5	2.3
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	7.0	"	7.0	3.3	"	4.5	"	4.5	2.1
12/18/76	"	2.0	"	2.0	2.0	"	2.0	"	2.1	2.0
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

IONIZATION CHAMBER READINGS
Indicator Stations

Week Ending	(SHIELDED) D-17 Serial Number	mR	ON-SITE STATION #2 Serial Number	mR	B mR/Week	(UNSHIELDED) D-17 Serial Number	mR	ON-SITE STATION #2 Serial Number	mR	B mR/Week
07/03/76	2628	(a)	2553	(a)	-	2535	(a)	2479	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	6.0	"	6.0	2.0	"	6.0	"	6.0	2.0
07/24/76	"	3.2	"	4.0	3.2	"	4.0	"	4.0	4.0
07/31/76	"	1.9	"	2.0	1.9	"	2.2	"	2.2	2.2
08/07/76	"	3.0	"	3.0	3.0	"	4.0	"	4.0	4.0
08/13/76	"	3.0	"	2.6	3.0	"	3.5	"	3.3	3.8
08/21/76	"	2.6	"	2.6	2.3	"	3.2	"	3.2	2.8
08/29/76	"	3.5	"	3.3	2.9	"	4.6	"	4.7	4.0
09/04/76	"	1.5	"	1.6	1.7	"	1.6	"	1.6	1.9
09/11/76	"	1.7	"	2.8	1.7	"	1.9	"	1.9	1.9
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	7.0	"	7.2	2.3	"	9.0	"	9.5	3.0
10/09/76	"	2.0	"	2.0	2.3	"	2.0	"	2.0	2.3
10/16/76	"	2.6	"	2.8	2.6	"	3.4	"	3.5	3.4
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	7.5	"	7.5	2.3	"	8.5	"	9.5	2.7
11/13/76	"	1.8	"	2.3	2.1	"	1.8	"	7.0	2.1
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	4.5	"	4.5	2.3	"	5.1	"	5.2	2.6
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	3.6	"	6.0	1.7	"	4.0	"	4.1	1.9
12/18/76	"	2.2	"	2.2	2.2	"	2.3	"	2.5	2.3
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

TABLE 5.1-5

IONIZATION CHAMBER READINGS
Indicator Stations

Week Ending	D-45 PHEASANT TRAIL PT					D-46 COLLINS ROAD CR				
	Serial Number	mR	Serial Number	mR	mR/Week	Serial Number	mR	Serial Number	mR	mR/Week
07/03/76	2474	(a)	2455	(a)	-	0775	(a)	2431	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	5.1	"	5.2	1.7	"	4.3	"	4.3	1.4
07/24/76	"	1.8	"	1.9	1.8	"	1.8	"	1.9	1.8
07/31/76	"	2.0	"	2.0	2.0	"	1.8	"	1.8	1.8
08/07/76	"	2.2	"	2.1	2.1	"	2.0	"	2.0	2.0
08/13/76	"	1.5	"	1.5	1.7	"	1.5	"	1.6	1.7
08/21/76	"	2.6	"	2.6	2.3	"	3.0	"	3.0	2.6
08/29/76	"	2.2	"	2.1	1.8	"	2.6	"	2.4	2.1
09/04/76	"	1.6	"	1.6	1.9	"	1.7	"	1.7	2.0
09/11/76	"	1.9	"	2.0	1.9	"	1.9	"	1.9	1.9
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	6.5	"	6.5	2.2	"	5.5	"	5.5	1.8
10/09/76	"	1.9	"	2.0	2.2	"	1.6	"	1.6	1.9
10/16/76	"	2.5	"	2.6	2.5	"	1.6	"	2.4	1.6
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	7.5	"	8.0	2.3	"	6.0	"	5.8	1.8
11/13/76	"	1.9	"	2.0	2.2	"	1.6	"	1.8	1.8
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	4.3	"	4.3	2.2	"	3.5	"	3.5	1.8
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	4.2	"	4.2	2.0	"	5.0	"	5.2	2.3
12/18/76	"	2.1	"	2.2	2.1	"	2.0	"	2.0	2.0
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather problems.

TABLE 5.1-6

IONIZATION CHAMBER READINGS
Indicator Stations

Week Ending	D-47 Serial Number	mR	PRAIRIE PARK Serial Number	mR	PP mR/Week
07/03/76	2422	(a)	2567	(a)	-
07/10/76	"	(a)	"	(a)	-
07/17/76	"	5.1	"	4.5	1.5
07/24/76	"	1.8	"	2.0	1.8
07/31/76	"	1.8	"	1.9	1.8
08/07/76	"	1.7	"	2.0	1.7
08/13/76	"	1.5	"	1.5	1.7
08/21/76	"	1.9	"	1.9	1.7
08/29/76	"	2.2	"	2.3	1.9
09/04/76	"	1.7	"	1.7	2.0
09/11/76	"	2.0	"	1.8	1.8
09/18/76	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-
10/03/76	"	5.5	"	5.5	1.8
10/09/76	"	1.6	"	1.8	1.9
10/16/76	"	1.8	"	1.9	1.8
10/23/76	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-
11/07/76	"	6.0	"	5.5	1.7
11/13/76	"	1.5	"	1.6	1.7
11/21/76	"	(b)	"	(b)	-
11/27/76	"	4.0	"	4.0	2.0
12/04/76	"	(a)	"	(a)	-
12/11/76	"	4.5	"	4.6	2.1
12/18/76	"	1.9	"	2.2	1.9
12/24/76	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

TABLE 5.1-7

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-02 ELWOOD J15 Serial Number	mR	Serial Number	mR	mR/Week	D-03 JOLIET, BRANDON RD. J48 Serial Number	mR	Serial Number	mR	mR/Week
07/03/76	2467	(a)	2466	(a)	-	2405	(a)	2554	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	4.3	"	4.4	1.4	"	5.2	"	5.3	1.7
07/24/76	"	1.9	"	1.9	1.9	"	1.9	"	2.2	1.9
07/31/76	"	1.7	"	1.8	1.7	"	1.8	"	1.9	1.8
08/07/76	"	1.8	"	2.0	1.8	"	2.3	"	2.3	2.3
08/13/76	"	1.6	"	1.7	1.9	"	2.0	"	2.0	2.3
08/21/76	"	2.1	"	2.2	1.8	"	2.8	"	3.0	2.5
08/29/76	"	2.1	"	2.5	1.8	"	2.7	"	2.4	2.1
09/04/76	"	1.8	"	1.8	2.1	"	2.0	"	2.2	2.3
09/11/76	"	2.5	"	2.5	2.5	"	2.3	"	2.2	2.2
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	6.5	"	6.8	2.2	"	6.5	"	6.5	2.2
10/09/76	"	2.0	"	2.0	2.3	"	2.0	"	2.2	2.3
10/16/76	"	2.5	"	2.6	2.5	"	2.5	"	2.3	2.3
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	6.0	"	5.5	1.7	"	7.5	"	7.0	2.2
11/13/76	"	2.0	"	2.3	2.3	"	2.2	"	2.3	2.5
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	4.0	"	4.0	2.0	"	4.5	"	4.5	2.3
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	4.0	"	4.0	1.9	"	4.2	"	4.5	2.0
12/18/76	"	1.9	"	2.0	1.9	"	2.2	"	2.2	2.2
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-04 WILMINGTON 464					D-06 MORRIS J16				
	Serial Number	mR	Serial Number	mR	mR/Week	Serial Number	mR	Serial Number	mR	mR/Week
07/03/76	2537	(a)	2642	(a)	-	2411	(a)	2457	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	4.5	"	4.5	1.5	"	4.3	"	4.5	1.4
07/24/76	"	1.5	"	4.0	1.5	"	1.8	"	1.8	1.8
07/31/76	"	1.5	"	1.6	1.5	"	1.6	"	1.8	1.6
08/07/76	"	1.5	"	1.6	1.5	"	2.2	"	2.0	2.0
08/13/76	"	1.5	"	1.4	1.6	"	1.6	"	1.5	1.7
08/21/76	"	2.6	"	2.7	2.3	"	2.0	"	2.2	1.8
08/29/76	"	1.8	"	1.8	1.6	"	F.S.	"	F.S.	F.S.(b)
09/04/76	"	1.5	"	1.5	1.7	"	1.5	"	1.6	1.7
09/11/76	"	1.7	"	1.8	1.7	"	2.0	"	1.8	1.8
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(c)	"	(c)	-	"	(c)	"	(c)	-
10/03/76	"	5.3	"	5.5	1.8	"	5.0	"	5.5	1.7
10/09/76	"	1.5	"	1.5	1.8	"	1.5	"	1.5	1.8
10/16/76	"	2.0	"	2.0	2.0	"	1.6	"	1.8	1.6
10/23/76	"	(c)	"	(c)	-	"	(c)	"	(c)	-
10/30/76	"	(c)	"	(c)	-	"	(c)	"	(c)	-
11/07/76	"	7.0	"	7.0	2.2	"	4.4	"	4.9	1.4
11/13/76	"	1.7	"	1.7	1.9	"	1.4	"	1.4	1.6
11/21/76	"	(c)	"	(c)	-	"	(c)	"	(c)	-
11/27/76	"	3.5	"	3.5	1.8	"	3.4	"	3.3	1.7
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	3.6	"	3.6	1.7	"	5.0	"	5.0	2.3
12/18/76	"	1.8	"	1.8	1.8	"	1.9	"	2.0	1.9
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) FS = Full Scale. Apparently anomalous reading.
(c) No reading due to weather conditions.

TABLE 5.1-9

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-07 LISBON J24 Serial Number	mR	Serial Number	mR	mR/Week	D-08 COAL CITY J68 Serial Number	mR	Serial Number	mR	mR/Week
07/03/76	2694	(a)	0274	(a)	-	2582	(a)	0973	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	4.3	"	4.2	1.4	"	4.8	"	4.8	1.6
07/24/76	"	1.4	"	1.5	1.4	"	1.8	"	1.9	1.8
07/31/76	"	1.5	"	1.8	1.5	"	1.5	"	1.4	1.4
08/07/76	"	1.8	"	1.7	1.7	"	1.7	"	1.5	1.5
08/13/76	"	1.4	"	1.4	1.6	"	1.3	"	1.3	1.5
08/21/76	"	2.0	"	2.5	1.8	"	2.0	"	2.0	1.8
08/29/76	"	2.0	"	2.0	1.8	"	2.0	"	1.9	1.7
09/04/76	"	2.0	"	2.2	2.3	"	1.5	"	1.7	1.7
09/11/76	"	1.8	"	1.8	1.8	"	1.5	"	1.8	1.5
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	5.5	"	5.5	1.8	"	4.6	"	5.0	1.5
10/09/76	"	1.5	"	1.5	1.8	"	1.5	"	1.5	1.8
10/16/76	"	1.8	"	1.8	1.8	"	1.6	"	1.6	1.6
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	5.2	"	5.2	1.6	"	5.5	"	5.0	1.5
11/13/76	"	1.2	"	1.3	1.5	"	1.8	"	1.7	1.9
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	4.0	"	3.7	1.9	"	3.5	"	3.5	1.8
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	4.2	"	4.3	2.0	"	4.2	"	4.5	2.0
12/18/76	"	1.8	"	1.9	1.8	"	1.7	"	1.8	1.7
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

TABLE 5.1-10

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-11 Serial Number	mR	CHANNAHON Serial Number	mR	CH mR/Week	D-14 Serial Number	mR	MINOOKA Serial Number	mR	J27 mR/Week
07/03/76	0775	(a)	2543	(a)	-	2610	(a)	2397	(a)	-
07/10/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
07/17/76	"	4.5	"	4.5	1.5	"	4.7	"	4.5	1.5
07/24/76	"	1.8	"	1.9	1.8	"	1.8	"	1.8	1.8
07/31/76	"	1.8	"	1.8	1.8	"	1.5	"	1.8	1.5
08/07/76	"	1.8	"	2.1	1.8	"	2.5	"	2.6	2.5
08/13/76	"	2.0	"	2.0	2.3	"	1.5	"	1.6	1.7
08/21/76	"	2.2	"	1.7	1.5	"	2.0	"	2.5	1.8
08/29/76	"	2.0	"	2.0	1.8	"	2.0	"	2.0	1.8
09/04/76	"	1.4	"	1.4	1.6	"	1.5	"	2.5	1.7
09/11/76	"	1.8	"	1.8	1.8	"	1.7	"	1.8	1.7
09/18/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
09/25/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/03/76	"	5.6	"	6.0	1.9	"	5.5	"	6.0	1.8
10/09/76	"	1.5	"	1.3	1.5	"	1.6	"	1.6	1.9
10/16/76	"	1.8	"	2.1	1.8	"	1.8	"	2.0	1.8
10/23/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
10/30/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/07/76	"	6.0	"	6.0	1.9	"	5.5	"	5.5	1.7
11/13/76	"	1.8	"	4.0	2.1	"	1.5	"	1.6	1.7
11/21/76	"	(b)	"	(b)	-	"	(b)	"	(b)	-
11/27/76	"	4.3	"	4.3	2.2	"	4.0	"	4.0	2.0
12/04/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/11/76	"	4.2	"	4.5	2.0	"	4.2	"	4.3	2.0
12/18/76	"	2.0	"	2.1	2.0	"	1.9	"	2.0	1.9
12/24/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) No reading due to weather conditions.

TABLE 5.1-11

IONIZATION CHAMBER READINGS
Background Station

Week Ending	D-44 Serial Number	mR	GOOSE LAKE VILLAGE Serial Number	mR	GLV mR/Week
07/03/76	2525	(a)	2724	(a)	-
07/10/76	"	(a)	"	(a)	-
07/17/76	"	4.8	"	5.0	1.6
07/24/76	"	1.6	"	1.6	1.6
07/31/76	"	1.8	"	1.9	1.8
08/07/76	"	1.9	"	1.9	1.9
08/13/76	"	1.5	"	1.5	1.7
08/21/76	"	2.0	"	2.0	1.8
08/29/76	"	F.S.	"	F.S.	F.S. (b)
09/04/76	"	1.5	"	1.5	1.7
09/11/76	"	1.6	"	1.6	1.6
09/18/76	"	(a)	"	(a)	-
09/25/76	"	(c)	"	(c)	-
10/03/76	"	5.0	"	5.0	1.7
10/09/76	"	1.5	"	1.5	1.8
10/16/76	"	1.6	"	1.6	1.6
10/23/76	"	(c)	"	(c)	-
10/30/76	"	(c)	"	(c)	-
11/07/76	"	5.0	"	5.0	1.5
11/13/76	"	1.4	"	1.4	1.6
11/21/76	"	(c)	"	(c)	-
11/27/76	"	4.0	"	4.0	2.0
12/04/76	"	(a)	"	(a)	-
12/11/76	"	5.0	"	4.8	2.2
12/18/76	"	1.9	"	2.2	1.9
12/24/76	"	(a)	"	(a)	-
12/31/76	"	(a)	"	(a)	-

(a) No reading due to minometer problems.
(b) FS = Full Scale. Apparently anomalous reading
(c) No reading due to weather conditions.

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
Indicator Stations

Week Ending	D-09 BENNITT BE Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)	D-15 CLAY PRODUCTS J21 Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)
07/03/76	295	< 1	3 ± 1	295	< 1	3 ± 1
07/10/76	285	-	4 ± 1	285	-	3 ± 1
07/17/76	285	-	5 ± 1	280	-	3 ± 1
07/24/76	285	-	5 ± 1	285	-	4 ± 1
07/31/76	280	-	4 ± 1	180	-	4 ± 1
08/07/76	290	< 5	4 ± 1	(a)	-	-
08/13/76	240	-	4 ± 1	95	-	< 12(b)
08/21/76	330	-	7 ± 1	330	-	5 ± 1
08/29/76	330	-	6 ± 1	325	-	5 ± 1
09/04/76	245	< 5	3 ± 1	245	< 5	4 ± 1
09/11/76	285	-	4 ± 1	285	-	4 ± 1
09/18/76	280	-	4 ± 1	280	-	3 ± 1
09/25/76	290	-	4 ± 1	290	-	5 ± 1
10/03/76	325	2 ± 1	7 ± 1	325	4 ± 2	5 ± 1
10/09/76	245	-	3 ± 2	245	-	3 ± 1
10/16/76	285	-	25 ± 3(c)	285	-	16 ± 2(c)
10/23/76	290	-	8 ± 2	290	-	7 ± 1
10/30/76	285	-	26 ± 4(c)	285	-	25 ± 4(c)
11/07/76	300	< 5	13 ± 1(c)	330	< 5	14 ± 1(c)
11/13/76	235	-	19 ± 3(c)	235	-	24 ± 3(c)
11/21/76	335	-	16 ± 3(c)	335	-	14 ± 2(c)
11/27/76	240	-	12 ± 2(c)	240	-	7 ± 1
12/04/76	285	< 5	12 ± 2(c)	285	< 5	15 ± 2(c)
12/11/76	285	-	16 ± 2(c)	285	-	18 ± 3(c)
12/18/76	285	-	11 ± 2(c)	285	-	11 ± 2(c)
12/24/76	245	-	8 ± 2	245	-	7 ± 2
12/31/76	290	-	10 ± 2(c)	290	-	12 ± 2(c)

*Iodine-131 is sampled alternate weeks. Activity is <.03 pCi/m^3 unless otherwise specified.
Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
(a) Lost in transit.
(b) Low sensitivity due to sample size.
(c) Unusual reading; refer to Section 5.0.

TABLE 5.2-2

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
Indicator Stations

Week Ending	D-16 ON-SITE STATION #1 A		D-17 ON-SITE STATION #2 B		D-18 ON-SITE STATION #3 C		
	Volume (m^3)	Gross β (10^{-2} pCi/m^3)	Volume (m^3)	Gross β (10^{-2} pCi/m^3)	Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)
07/03/76	285	2 ± 1	285	2 ± 1	285	2 ± 1	4 ± 1
07/10/76	285	4 ± 1	290	5 ± 1	290	-	6 ± 1
07/17/76	280	6 ± 1	280	6 ± 1	280	-	5 ± 1
07/24/76	285	5 ± 1	285	8 ± 1	285	-	6 ± 1
07/31/76	280	4 ± 1	285	4 ± 1	285	-	5 ± 1
08/07/76	(a)	(a)	290	3 ± 1	290	< 5	8 ± 1
08/13/76	240	4 ± 1	240	6 ± 1	240	-	5 ± 1
08/21/76	230	6 ± 1	330	6 ± 1	330	-	7 ± 1
08/29/76	325	7 ± 1	325	6 ± 1	325	-	7 ± 1
09/04/76	245	4 ± 1	250	4 ± 1	250	< 5	4 ± 1
09/11/76	265	5 ± 1	280	5 ± 1	280	-	5 ± 1
09/18/76	280	4 ± 1	280	4 ± 1	280	-	4 ± 1
09/25/76	290	5 ± 1	290	5 ± 1	290	-	5 ± 1
10/03-76	325	6 ± 1	320	6 ± 1	325	8 ± 3	6 ± 1
10/09/76	240	4 ± 1	245	1 ± 1	245	-	4 ± 1
10/16/76	285	18 ± 2(b)	285	51 ± 5(b)	285	-	10 ± 1(b)
10/23/76	290	14 ± 3(b)	290	14 ± 3(b)	290	-	7 ± 1
10/30/76	285	35 ± 5(b)	285	31 ± 5(b)	285	-	23 ± 3(b)
11/07/76	330	25 ± 1(b)	335	16 ± 1(b)	335	< 5	15 ± 1(b)
11/13/76	240	20 ± 3(b)	240	28 ± 3(b)	240	-	16 ± 3(b)
11/21/76	335	16 ± 3(b)	330	15 ± 2(b)	330	-	14 ± 2(b)
11/27/76	240	17 ± 2(b)	240	15 ± 2(b)	240	-	13 ± 2(b)
12/04/76	275	15 ± 2(b)	285	15 ± 2(b)	285	< 5	10 ± 2(b)
12/11/76	275	18 ± 3(b)	280	19 ± 3(b)	285	-	19 ± 3(b)
12/18/76	285	12 ± 2(b)	285	14 ± 2(b)	285	-	10 ± 2(b)
12/24/76	245	12 ± 3(b)	245	12 ± 3(b)	245	-	9 ± 2
12/31/76	290	12 ± 2(b)	290	12 ± 2(b)	290	-	9 ± 2

*Iodine-131 is sampled alternate weeks. Activity is <.03 pCi/m^3 unless otherwise specified.
Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
(a) Lost in transit. (b) Unusual reading; refer to Section 5.0.

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
Indicator Stations

Week Ending	D-45 PHEASANT TRAIL PT Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)	D-46 COLLINS ROAD CR Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)	D-47 PRAIRIE PARK PP Volume (m^3)	Gross β (10^{-2} pCi/m^3)
07/03/76	285	< 1	4 ± 1	285	2 ± 1	2 ± 1	295	2 ± 1
07/10/76	290	-	3 ± 1	285	-	4 ± 1	275	4 ± 1
07/17/76	280	-	4 ± 1	280	-	3 ± 1	280	3 ± 1
07/24/76	285	-	6 ± 1	285	-	4 ± 1	285	5 ± 1
07/31/76	285	-	5 ± 1	285	-	4 ± 1	285	4 ± 1
08/07/76	295	< 5	5 ± 1	290	< 5	4 ± 1	275	5 ± 1
08/13/76	235	-	5 ± 1	240	-	4 ± 1	240	5 ± 1
08/21/76	330	-	5 ± 1	330	-	7 ± 1	330	6 ± 1
08/29/76	325	-	5 ± 1	325	-	6 ± 1	320	5 ± 1
09/04/76	250	< 5	4 ± 1	245	< 5	4 ± 1	245	3 ± 1
09/11/76	280	-	5 ± 1	285	-	4 ± 1	285	4 ± 1
09/18/76	245	-	5 ± 1	280	-	4 ± 1	280	4 ± 1
09/25/76	290	-	4 ± 1	290	-	4 ± 1	290	5 ± 1
10/03/76	325	3 ± 1	6 ± 1	325	2 ± 1	6 ± 1	325	6 ± 1
10/09/76	245	-	4 ± 1	245	-	2 ± 1	245	3 ± 1
10/16/76	285	-	15 ± 2+	285	-	12 ± 2+	285	14 ± 1+
10/23/76	290	-	14 ± 2+	290	-	10 ± 2+	290	8 ± 2
10/30/76	280	-	26 ± 4+	285	-	38 ± 6+	280	39 ± 6+
11/07/76	335	< 5	21 ± 1+	330	< 5	11 ± 1+	330	16 ± 1+
11/13/76	240	-	24 ± 3+	240	-	21 ± 3+	235	22 ± 3+
11/21/76	330	-	17 ± 3+	335	-	16 ± 3+	335	20 ± 2+
11/27/76	240	-	11 ± 2+	240	-	13 ± 2+	240	10 ± 2+
12/04/76	290	< 5	15 ± 2+	285	< 5	9 ± 2	285	14 ± 2+
12/11/76	280**	-	16 ± 2+	280**	-	13 ± 2+	280**	17 ± 3+
12/18/76	285	-	12 ± 2+	285	-	8 ± 2	285	10 ± 2+
12/24/76	245	-	8 ± 2	245	-	8 ± 2	245	8 ± 2
12/31/76	290	-	10 ± 2+	290	-	9 ± 2	290	10 ± 2+

*Iodine-131 is sampled alternate weeks. Activity is <.03 pCi/m^3 unless otherwise specified. Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
**Estimated volume. +Unusual reading; refer to Section 5.0.

TABLE 5.2-4

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
Background Stations

Week Ending	D-02 ELWOOD J15 Volume (m^3)	D-02 ELWOOD J15 Gross β (10^{-2} pCi/m^3)	D-03 JOLIET, BRANDON ROAD J48 Volume (m^3)	D-03 JOLIET, BRANDON ROAD J48 Gross α (10^{-3} pCi/m^3)	D-03 JOLIET, BRANDON ROAD J48 Gross β (10^{-2} pCi/m^3)	D-04 WILMINGTON 464 Volume (m^3)	D-04 WILMINGTON 464 Gross β (10^{-2} pCi/m^3)
07/03/76	290	2 ± 1	290	2 ± 1	2 ± 1	290	3 ± 1
07/10/76	285	4 ± 1	280	-	4 ± 1	280	5 ± 1
07/17/76	280	4 ± 1	280	-	3 ± 1	270	3 ± 1
07/24/76	285	5 ± 1	285	-	4 ± 1	285	4 ± 1
07/31/76	285	5 ± 1	285	-	4 ± 1	285	4 ± 1
08/07/76	295	5 ± 1	295	< 5	4 ± 1	295	5 ± 1
08/13/76	235	6 ± 1	235	-	5 ± 1	235	5 ± 1
08/21/76	330	4 ± 1	330	-	5 ± 1	330	5 ± 1
08/29/76	325	6 ± 1	325	-	5 ± 1	325	6 ± 1
09/04/76	250	4 ± 1	250	< 5	4 ± 1	250	3 ± 1
09/11/76	280	4 ± 1	280	-	4 ± 1	280	4 ± 1
09/18/76	280	4 ± 1	35	-	< 4**	280	4 ± 1
09/25/76	290	4 ± 1	290	-	4 ± 1	290	4 ± 1
10/03/76	325	6 ± 1	325	4 ± 2	6 ± 1	325	6 ± 1
10/09/76	245	3 ± 1	245	-	3 ± 1	245	3 ± 1
10/16/76	285	18 ± 1+	280	-	16 ± 1+	280	17 ± 1+
10/23/76	290	19 ± 4+	290	-	13 ± 3+	290	7 ± 1
10/30/76	285	23 ± 3+	285	-	27 ± 4+	285	33 ± 5+
11/07/76	335	16 ± 1+	335	< 5	14 ± 1+	335	15 ± 1+
11/13/76	240	19 ± 3+	240	-	20 ± 3+	240	18 ± 3+
11/21/76	330	14 ± 2+	330	-	18 ± 3+	330	16 ± 3+
11/27/76	245	14 ± 2+	230	-	13 ± 2+	240	15 ± 2+
12/04/76	285	13 ± 2+	285	< 5	13 ± 2+	285	11 ± 2+
12/11/76	285	14 ± 2+	280	-	16 ± 2+	280	17 ± 3+
12/18/76	285	11 ± 2+	285	-	11 ± 2+	285	14 ± 2+
12/24/76	245	10 ± 2+	245	-	9 ± 2	245	9 ± 2
12/31/76	290	14 ± 2+	290	-	10 ± 2+	290	9 ± 2

*Iodine-131 is sampled alternate weeks. Activity is <.03 pCi/m^3 unless otherwise specified. Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
**Low sensitivity due to small sample size. +Unusual reading; refer to Section 5.0.

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
Background Stations

Week Ending	D-06 MORRIS J16 Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)	D-07 LISBON J24 Volume (m^3)	Gross β (10^{-2} pCi/m^3)	D-08 COAL CITY J68 Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)
07/03/76	295	3 ± 1	3 ± 1	295	4 ± 1	295	2 ± 1	3 ± 1
07/10/76	280	-	4 ± 1	280	4 ± 1	280	-	3 ± 1
07/17/76	280	-	4 ± 1	285	3 ± 1	280	-	4 ± 1
07/24/76	285	-	3 ± 1	285	4 ± 1	285	-	3 ± 1
07/31/76	285	-	4 ± 1	280	4 ± 1	280	-	3 ± 1
08/07/76	290	< 5	5 ± 1	290	4 ± 1	285	< 5	4 ± 1
08/13/76	240	-	5 ± 1	240	4 ± 1	240	-	5 ± 1
08/21/76	330	-	6 ± 1	330	5 ± 1	330	-	4 ± 1
08/29/76	330	-	5 ± 1	330	5 ± 1	325	-	5 ± 1
09/04/76	245	< 5	3 ± 1	245	3 ± 1	245	< 5	4 ± 1
09/11/76	285	-	4 ± 1	285	4 ± 1	285	-	4 ± 1
09/18/76	280	-	3 ± 1	280	4 ± 1	280	-	4 ± 1
09/25/76	290	-	5 ± 1	290	4 ± 1	290	-	4 ± 1
10/03/76	325	< 1	6 ± 1	325	6 ± 1	325	2 ± 1	5 ± 1
10/09/76	245	-	3 ± 1	245	3 ± 1	245	-	3 ± 1
10/16/76	285	-	19 ± 1+	285	20 ± 2+	285	-	13 ± 1+
10/23/76	290	-	11 ± 2+	290	6 ± 1	290	-	8 ± 2
10/30/76	285	-	26 ± 4+	285	40 ± 6+	285	-	23 ± 3+
11/07/76	330	< 5	12 ± 1+	330	13 ± 1+	330	< 5	16 ± 1+
11/13/76	235	-	15 ± 3+	235	14 ± 3+	235	-	22 ± 3+
11/21/76	335	-	15 ± 2+	335	11 ± 2+	335	-	14 ± 2+
11/27/76	240	-	12 ± 2+	240	12 ± 2+	240	-	12 ± 2+
12/04/76	285	< 5	12 ± 2+	285	9 ± 2	285	< 5	12 ± 2+
12/11/76	280	-	15 ± 2+	250	15 ± 2+	285	-	14 ± 2+
12/18/76	285	-	10 ± 2+	285	9 ± 2	285	-	11 ± 2+
12/24/76	245	-	9 ± 2	245	10 ± 2+	245	-	10 ± 2+
12/31/76	290	-	10 ± 2+	290	3 ± 1	290	-	7 ± 2

*Iodine-131 is sampled alternate weeks. Activity is <.03 pCi/m^3 unless otherwise specified. Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
+Unusual reading; refer to Section 5.0.

TABLE 5.2-6

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
Background Stations

	D-11 CHANNAHON CH		D-14 MINOOKA J27			D-44 GOOSE LAKE VILLAGE GLV		
Week Ending	Volume (m^3)	Gross β (10^{-2} pCi/m^3)	Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)	Volume (m^3)	Gross α (10^{-3} pCi/m^3)	Gross β (10^{-2} pCi/m^3)
07/03/76	295	2 ± 1	260	2 ± 1	3 ± 1	260	< 1	3 ± 1
07/10/76	285	4 ± 1	280	-	5 ± 1	260	-	4 ± 1
07/17/76	285	4 ± 1	285	-	3 ± 1	245	-	4 ± 1
07/24/76	285	4 ± 1	285	-	4 ± 1	275	-	5 ± 1
07/31/76	280	3 ± 1	280	-	3 ± 1	265	-	3 ± 1
08/07/76	290	3 ± 1	290	< 5	4 ± 1	285	< 5	5 ± 1
08/13/76	245	4 ± 1	240	-	6 ± 1	235	-	4 ± 1
08/21/76	330	6 ± 1	330	-	5 ± 1	330	-	6 ± 1
08/29/76	330	7 ± 1	330	-	6 ± 1	325	-	8 ± 1
09/04/76	245	4 ± 1	245	< 5	3 ± 1	245	< 5	5 ± 1
09/11/76	285	5 ± 1	285	-	4 ± 1	285	-	5 ± 1
09/18/76	280	5 ± 1	280	-	5 ± 1	280	-	5 ± 1
09/25/76	30	6 ± 6	290	-	5 ± 1	290	-	2 ± 1
10/03/76	**		325	2 ± 1	6 ± 1	330	2 ± 1	6 ± 1
10/09/76	245	4 ± 1	245	-	4 ± 1	245	-	3 ± 1
10/16/76	285	24 ± 3+	285	-	16 ± 2+	285	-	22 ± 2+
10/23/76	290	7 ± 1	290	-	26 ± 5+	290	-	17 ± 3+
10/30/76	285	20 ± 3+	285	-	25 ± 4+	285	-	28 ± 4+
11/07/76	330	13 ± 1+	330	3 ± 2	18 ± 1+	330	< 5	16 ± 1+
11/13/76	235	18 ± 3+	235	-	27 ± 3+	235	-	27 ± 3+
11/21/76	330	16 ± 3+	335	-	13 ± 2+	335	-	13 ± 2+
11/27/76	240	13 ± 2+	240	-	12 ± 2+	240	-	11 ± 2+
12/04/76	285	13 ± 2+	285	< 5	10 ± 2+	285	< 5	12 ± 2+
12/11/76	285	16 ± 2+	285	-	19 ± 3+	280***	-	18 ± 3+
12/18/76	285	13 ± 2+	285	-	12 ± 2+	285	-	10 ± 2+
12/24/76	245	9 ± 2	245	-	10 ± 2+	245	-	8 ± 2
12/31/76	290	9 ± 2	290	-	9 ± 2	290	-	9 ± 2

*Iodine-131 is sampled alternate weeks. Activity is <.03 pCi/m^3 unless otherwise specified. Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
**Sample not collected due to faulty pump. ***Estimated volume. +Unusual reading; refer to Section 5.0.

TABLE 5.2-7

GAMMA ISOTOPIC (GeLi) ANALYSIS OF
MONTHLY COMPOSITE AIR PARTICULATE FILTERS

(Stations D-02 to D-18, D-44 to D-47)

Month	pCi/m^3	
	Be-7	Other Gamma Emitters*
July	0.13 ± 0.01	< .01
August	0.15 ± 0.01	< .01
September	0.08 ± 0.01	< .01
October	0.06 ± 0.01	< .01**
November	0.04 ± 0.01	< .01
December	0.07 ± 0.01	< .01+

+Ru-103, Ru-106, Ce-141 detected at < 0.1 pCi/m^3 but not further quantified.

**Ce-141 detected but not quantified.

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TABLE 5.2-8

COMPOSITE OF ALL DNPS AP FILTERS COLLECTED 10/16/76

(1) Gamma Emitters* identified by computer pCi/m^3: < 3 E-04

(2) Gamma emitters identified visually and confirmed by the presence of two or more characteristic energies (fission and/or activation products only).

Ce-141	Cs-137 (662 KeV only)
Sb-125	Rh-102
Pm-151	Rh-102m
I-131	Ag-110m
Ba-140	Sb-124
La-140	Eu-154
Bi-207	Mn-54

(3) Gamma emitters identified visually with less confidence (i.e., no confirming energies or no reasonable explanation of presence).

Ir-192	I-134	I-133	Ir-192
Cs-134	I-135	Bi-207	Eu-152

COMPOSITE OF ALL DNPS AP FILTERS COLLECTED 10/03/76

(1) Gamma emitters* identified by computer:

Nuclide	pCi/m^3
Sb-125	Not quantified(<1E-02)
Others	< 3.4 (E-04)

(2) Gamma emitters identified visually and confirmed by the presence of two or more characteristic energies (fission and/or activation products only).

Ba-La-140, Sb-125, Eu-152(?), Co-60

(3) Gamma emitters identified visually with less confidence (i.e., no confirming energies or no reasonable explanation of presence).

None

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

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GROSS ALPHA, GROSS BETA AND IODINE-131* IN SURFACE WATER SAMPLES

Collection Date	Background Station D-19 INLET CANAL 1D Gross α (pCi/1)	Gross β (pCi/1)	Indicator Station D-20-1 DISCHARGE CANAL 1D Gross α (pCi/1)	Gross β (pCi/1)	Indicator Station DISCHARGE D-20-2/3 CANAL 2/3D Gross α (pCi/1)	Gross β (pCi/1)	Indicator Station IL RIVER AT D-21 EJ and E RR Gross α (pCi/1)	Gross β (pCi/1)
07/03/76	1 ± 1	9 ± 2	<1	6 ± 2	1 ± 1	6 ± 2	2 ± 1	10 ± 3
07/10/76	<1	6 ± 3	<1	6 ± 2	<1	4 ± 2	3 ± 2	24 ± 4
07/17/76	<0.5	4 ± 3	<0.5	4 ± 2	<0.5	7 ± 3	<0.5	13 ± 3
07/24/76	<1	6 ± 3	<1	4 ± 2	<0.5	5 ± 2	2 ± 1	10 ± 3
07/31/76	2 ± 1	13 ± 4	3 ± 2	8 ± 3	1 ± 1	12 ± 4	<1	17 ± 4
08/07/76	<1	16 ± 4	<1	16 ± 3	<1	14 ± 4	<1	7 ± 4
08/13/76	1 ± 1	9 ± 3	1 ± 1	6 ± 2	<1	7 ± 3	3 ± 2	11 ± 3
08/21/76	<1	9 ± 4	<1	7 ± 4	<1	9 ± 4	<1	7 ± 4
08/27/76	<1	6 ± 2	<1	5 ± 2	<1	5 ± 2	<1**	4 ± 3
09/04/76	<1	8 ± 2	<1	8 ± 2	<1	10 ± 3	<1	9 ± 3
09/11/76	<1	14 ± 3	<1	7 ± 2	<0.5	7 ± 3	<0.5	6 ± 3
09/18/76	<1	9 ± 3	<1	8 ± 2	<0.5	18 ± 3	<0.5	8 ± 3
09/25/76	<1	8 ± 3	<1	7 ± 2	<1	8 ± 2	<1	10 ± 3
10/02/76	<1	11 ± 4	<1	7 ± 3	<1	5 ± 3	<1***	7 ± 2
10/09/76	<0.5	3 ± 2	0.6 ± 0.5	4 ± 2	<0.5	4 ± 2	<1	3 ± 2
10/16/76	<0.5	4 ± 2	<0.5	4 ± 2	<0.5	4 ± 2	<0.5	5 ± 3
10/23/76	<0.5	12 ± 2	<0.5	20 ± 4	<0.5	16 ± 3	1 ± 1	12 ± 4
10/30/76	<1	9 ± 3	<1	6 ± 2	<1	9 ± 3	<1	7 ± 3
11/06/76	2 ± 1	10 ± 3	<1	10 ± 3	2 ± 1	8 ± 3	<2	7 ± 4
11/13/76	3 ± 2	20 ± 4	<1	10 ± 3	<1	18 ± 4	<1	13 ± 3
11/20/76	<0.9	8 ± 2	2 ± 1	8 ± 2	4 ± 1	7 ± 2	6 ± 2	8 ± 2
11/28/76	<1	4 ± 3+	<1	4 ± 3+	<1	6 ± 3	<1	5 ± 3
12/04/76	<0.5	< 3	<0.5	4 ± 3	<0.5	< 5	<0.5	4 ± 3
12/11/76	<1	6 ± 3	<1	4 ± 2	2 ± 2	6 ± 2	3 ± 2	14 ± 4
12/18/76	<1	3 ± 2	<1	3 ± 2	<1	5 ± 2	<1	3 ± 2
12/23/76	<1	4 ± 2	<1	6 ± 2	<1	5 ± 2	<0.5	10 ± 3
12/30/76	<1	3 ± 2	<1	4 ± 2	<1	6 ± 2	1 ± 1	4 ± 2

*Iodine-131 sampled weekly. Activity is <4 pCi/1 unless otherwise specified. Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
**Collected 08/29/76. ***Collected 10/03/76. +Unusual finding, I-131 activity for D-19 = 5 ± 3; D-20-1 = 4 ± 3.

TABLE 5.3-2

GROSS BETA IN SURFACE WATER SAMPLES
Indicator Stations

Collection Date	Illinois River at Morris (D-22)+ Gross β (pCi/l)
07/17/76	10 ± 2
07/24/76	17 ± 3
07/31/76	5 ± 3
08/15/76	6 ± 3
08/31/76	16 ± 3
09/15/76	7 ± 3
09/31/76	7 ± 2
10/15/76	9 ± 3
10/31/76	9 ± 2
11/15/76	9 ± 2
11/31/76	9 ± 2
12/15/76	6 ± 2
12/31/76	3 ± 2

Collection Date	Dresden Lake (Pond) (D-34) Gross β (pCi/l)
07/03/76	4 ± 2
07/10/76	6 ± 2
07/17/76	11 ± 3
07/24/76	10 ± 7
07/31/76	3 ± 3
08/07/76	5 ± 3
08/13/76	4 ± 3
08/21/76	4 ± 3
08/29/76	5 ± 3
09/04/76	6 ± 2
09/11/76	6 ± 2
09/18/76	5 ± 3
09/25/76	5 ± 2
10/03/76	32 ± 5**
10/09/76	6 ± 2
10/16/76	8 ± 3
10/23/76	6 ± 3
10/30/76	7 ± 3
11/07/76	3 ± 2
11/13/76	30 ±11**
11/21/76	7 ± 2
11/27/76	11 ± 2
12/04/76	7 ± 2
12/11/76	9 ± 3
12/18/76	6 ± 2
12/24/76	9 ± 2
12/31/76	3 ± 2

Collection Date	(D-23) Dresden Lock and Dam pCi/l			
	Gross β	Sr-89	Sr-90	Gamma Emitters*
08/07/76	6 ± 3	< 5	< 1	< 10
11/07/76	6 ± 4	< 5	< 1	< 10

+This station collected by the State of Illinois and is not always available on scheduled dates.
**High solids content, and/or fresh fallout (See Section 5.0.
*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

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TRITIUM, Sr-89 and Sr-90 IN SURFACE WATER COMPOSITE SAMPLES

Collection Site	Tritium pCi/l		Sr-89 pCi/l		Sr-90 pCi/l	
	July - Sept.	Oct. - Dec.	July - Sept.	Oct. - Dec.	July - Sept.	Oct. - Dec.
Inlet Canal (D-19)	210 ± 100	360 ± 120	< 5	< 5	< 1	< 1
Unit 1 Discharge Canal (D-20-1)	360 ± 100	470 ± 130	< 5	< 5	< 1	< 2
Unit 2 Discharge Canal (D-20-2/3)	380 ± 100	590 ± 140	< 5	< 5	< 1	< 2
Illinois River at EJ&E RR Bridge (D-21)	440 ± 100	720 ± 140	< 5	< 5	< 1	< 2
Illinois River at Morris (D-22)	190 ± 100	370 ± 120	NR	NR	NR	NR
Dresden Lake (D-34)	280 ± 100	310 ± 120	NR	NR	NR	NR

ADDITIONAL ANALYSIS OF SURFACE WATER

Collection Site	Collection Date	Gamma Emitters* (pCi/l)
D-19 Inlet Canal	11/20/76	< 10
D-20-1 Unit 1 Discharge Canal	11/20/76	< 10

NR = Not required.

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TABLE 5.3-4

GAMMA ISOTOPIC, GROSS BETA ANALYSES OF PERIPHYTON (SLIME) SAMPLES

Collection Site	Collection Date	pCi/g (Dry) Gross Beta	Gamma Isotopic*
Dresden Lock and Dam (D-23)	08/07/76	52 ± 3	< 1
	11/13/76	6 ± 2	NR
Kankakee River (D-36)	08/07/76	65 ± 4	< 1
	11/13/76	15 ± 2	NR
Des Plaines River (D-37)	08/07/76	42 ± 3	< 1
	11/13/76	14 ± 2	NR

RADIONUCLIDES IN AQUATIC PLANTS

Collection Site	Collection Date	Wt. Ratio Wet - Dry	pCi/g (Wet) Gross β	Cs-134	Cs-137	Co-60	I-131	Sr-89	Sr-90
(D-19) Inlet Canal	08/08/76	8.22	< 1	< 1	< 1	< 1	< 1	< 2	< 1
(D-20-1) Disch. Canal	08/08/76	6.21	1 ± 1	< 1	< 1	< 1	< 1	< 2	< 1
(D-20-2/3) Disch. Canal	08/08/76	4.78	6 ± 1	< 1	< 1	< 1	< 1	< 2	< 1

GROSS BETA, Sr-89, Sr-90 AND GAMMA ISOTOPIC ANALYSES OF FISH SAMPLES

Collection Site	Collection Date	Sample Description	Radionuclide Concentration pCi/g (Wet) Gross β	Sr-89	Sr-90	Gamma Isotopic*
D-23 Dresden Lock and Dam	08/08/76	Carp - Whole	6 ± 2	< 2	< 1	< 0.1
	08/08/76	Carp - Edible	8 ± 2	< 2	< 1	< 0.1
	08/08/76	Bullhead-Whole	6 ± 2	< 2	< 1	< 0.1
	08/08/76	Bullhead-Edible	9 ± 2	< 2	< 1	< 0.1

GAMMA ISOTOPIC, GROSS BETA, Sr-89 and Sr-90 ANALYSES OF SEDIMENT SAMPLES

Collection Site	Collection Date	pCi/g (Dry) Gross Beta	Sr-89	Sr-90	Gamma Isotopic*
(D-23) Dresden Lock and Dam	08/07/76	3 ± 1	< 2	< 1	< 1
	11/13/76	6 ± 1	< 2	< 1	< 1
(D-36) Kankakee River	08/07/76	1 ± 1	< 2	< 1	< 1
	11/13/76	< 1	< 2	< 1	NR
(D-37) Des Plaines River	08/07/76	3 ± 1	< 2	< 1	< 1
	11/13/76	3 ± 1	< 2	< 1	NR

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.
NR = Not required.

TABLE 5.4-1

IODINE-131 IN MILK

Collection Date	pCi/l at time of collection Davidson Farm D-30 DA	Dorin Farm D-59 DF	Mather Farm D-53 MF
07/03/76	< 0.5	< 0.5	< 0.5
07/10/76	< 0.5	< 0.5	< 0.5
07/17/76	(a)	< 0.5	< 0.5
07/24/76	(a)	< 0.5	< 0.5
07/31/76	< 0.5	< 0.5	< 0.5
08/07/76	< 0.5	< 0.5	< 0.5
08/13/76	< 0.5	< 0.5	< 0.5
08/21/76	< 0.5	< 0.5	< 0.5
08/28/76	< 0.5	< 0.5	< 0.5
09/04/76	< 1.5*	< 0.5	< 0.5
09/11/76	< 0.5	< 0.5	< 0.5
09/18/76	< 0.5	< 0.5	< 0.5
09/25/76	< 0.5	< 0.5	< 0.5
10/02/76	< 4.0	< 4.0	< 4.0
10/09/76	0.74 ± 0.15(b)	0.90 ± 0.09(b)	1.01 ± 0.10(b)
10/16/76	(a)	(a)	(a)
10/23/76	12.2 ± 0.3 (b)	6.90 ± 0.30(b)	7.0 ± 0.3 (b)
10/30/76	5.87 ± 0.37(b)	6.58 ± 0.36(b)	0.52 ± 0.20(b)
11/07/76	5.32 ± 0.37(b)	2.45 ± 0.25(b)	2.47 ± 0.30(b)
11/13/76	< 4.0	< 4.0	< 4.0
11/20/76	< 4.0	< 4.0	< 4.0
11/27/76	< 4.0	< 4.0	< 4.0
12/04/76	< 4.0	< 4.0	< 4.0
12/11/76	< 4.0	< 4.0	< 4.0
12/18/76	< 4.0	< 4.0	< 4.0
12/24/76	< 4.0	< 4.0	< 4.0

Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.

(a) Lost in processing. *Contamination on filter prevents more sensitive analysis.
(b) Unusual reading; refer to Sections 5.0 and 5.4.

TABLE 5.4-2

RADIONUCLIDES IN MILK

Monthly Composites

Month of Collection	D-30 DAVIDSON FARM Sr-89 (pCi/l)	Sr-90 (pCi/l)	Cs-137 (pCi/l)	Calcium (g/l)	HTO* (pCi/l)
July	< 5	6 ± 2	< 5	1.63	
August	< 5	8 ± 3	< 5	0.89	
September	< 5	2 ± 1	< 5	1.61	240 ± 100
October	< 5	< 2	< 5	1.42	
November	< 5	2 ± 1	< 5	1.41	
December	< 5	2 ± 1	< 5	1.64	

Month of Collection	D-59 DORIN FARM Sr-89 (pCi/l)	Sr-90 (pCi/l)	Cs-137 (pCi/l)	Calcium (g/l)	HTO* (pCi/l)
July	< 5	4 ± 2	< 5	1.79	
August	< 5	8 ± 2	< 5	1.17	
September	< 5	3 ± 2	< 5	1.48	350 ± 120
October	< 5	6 ± 2	< 5	1.36	
November	< 5	5 ± 1	< 5	1.40	
December	< 5	6 ± 1	< 5	1.56	

Month of Collection	D-53 MATHER FARM Sr-89 (pCi/l)	Sr-90 (pCi/l)	Cs-137 (pCi/l)	Calcium (g/l)	HTO* (pCi/l)
July	< 5	4 ± 2	< 5	1.89	
August	< 5	3 ± 2	< 5	0.89	
September	< 5	6 ± 1	< 5	1.69	200 ± 100
October	< 5	6 ± 2	< 5	1.37	
November	< 5	4 ± 1	< 5	2.00	
December	< 5	3 ± 1	< 5	1.45	

*HTO required on September sample only.
Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.

TABLE 5.4-3

GROSS BETA AND RADIOSTRONTIUM IN GRASS AND CATTLEFEED

Collection Site	Collection Date	Type Feed	pCi/g (Wet) Gross Beta	Sr-89	Sr-90
Davidson Farm	07/03/76	Grain	6 ± 1	< 2	< 1
(D-30) Ind.	07/03/76	Grass	16 ± 2	< 2	< 1
	07/07/76	Grain and Silage	1 ± 1	< 2	< 1
	(a)08/07/76	Grass	8 ± 1	< 2	< 1
	09/04/76	Grain and Silage	4 ± 1	< 2	< 1
	(a)09/11/76	Grass	10 ± 1	< 2	< 1
	(a)09/25/76	Grass	4 ± 1	< 2	< 1
	09/04/76	Grass	4 ± 1	< 2	< 1
	10/03/76	Silage	9 ± 1	< 2	< 1
	10/03/76	Grass	3 ± 1	< 2	< 1
	10/03/76	Hay	5 ± 2	< 2	< 1
	11/07/76	Grass	33 ± 3	< 2	< 1
	11/07/76	Grain	4 ± 2	< 2	< 1
	(a)12/24/76	Grass	8 ± 2	< 2	< 1
	12/04/76	Hay	13 ± 2	< 2	< 1
	12/04/76	Grain	4 ± 1	< 2	< 1
Mather Farm	07/03/76	Grain	4 ± 1	< 2	< 1
(D-53) Bkg	07/03/76	Grass	8 ± 1	< 2	< 1
	08/07/76	Grain	4 ± 1	< 2	< 1
	(a)08/07/76	Grass	8 ± 1	< 2	< 1
	09/04/76	Grain	3 ± 1	< 2	< 1
	09/04/76	Grass	4 ± 1	< 2	< 1
	(a)09/11/76	Grass	29 ± 4	< 2	< 1
	(a)09/25/76	Grass	2 ± 1	< 2	< 1
	10/03/76	Grain	4 ± 1	< 2	< 1
	10/03/76	Grass	2 ± 1	< 2	< 1
	10/03/76	Hay	11 ± 2	< 2	< 1
	11/07/76	Grass	13 ± 2	< 2	< 1
	11/07/76	Grain	1 ± 1	< 2	< 1
	12/04/76	Hay	17 ± 2	< 2	< 1
	12/04/76	Grain	3 ± 1	< 2	< 1
	(a)12/24/76	Grass	2 ± 1	< 2	< 1
Dorin Farm	07/03/76	Grain	4 ± 1	< 2	< 1
(D-59) Ind.	07/03/76	Grass	14 ± 1	< 2	< 1
	08/07/76	Grain	7 ± 2	< 2	< 1
	(a)08/07/76	Grass	7 ± 1	< 2	< 1
	09/04/76	Grain	9 ± 1	< 2	< 1
	09/04/76	Grass	5 ± 1	< 2	< 1
	(a)09/11/76	Grass	11 ± 2	< 2	< 1
	(a)09/25/76	Grass	5 ± 1	< 2	< 1
	10/03/76	Grain	5 ± 1	< 2	< 1
	10/03/76	Grass	1 ± 1	< 2	< 1
	10/03/76	Hay	11 ± 2	< 2	< 1
	11/07/76	Grain	5 ± 2	< 2	< 1
	11/07/76	Grass	13 ± 2	< 2	< 1
	12/04/76	Hay	21 ± 2	< 2	< 1
	12/04/76	Grain	5 ± 1	< 2	< 1
	(a)12/24/76	Grass	7 ± 1	< 2	< 1

(a) Special Collection

TABLE 5.4-4

GAMMA ISOTOPIC ANALYSES OF GRASS AND CATTLE FEED

Collection Site	Collection Date	Type Feed	pCi/gm (Dry) Cs-137	I-131	Other Gamma*
Davidson Farm	07/03/76	Grass	< 1	< 1	< 1
(D-30)	(a)08/07/76	"	< 1	< 0.5	< 1
Indicator Station	09/04/76	"	< 1	< 1	< 1
	(a)09/11/76	"	< 1	< 1	< 1
	(a)09/25/76	"	< 1	< 1	< 1
	10/03/76	"	< 1	< 1	< 1
	11/07/76	"	< 1	< 1	< 1
	(a)12/24/76	"	< 1	< 0.25	< 1
	12/31/76	"	< 1	< 0.31	< 1
Dorin Farm	07/03/76	Grass	< 1	NR	< 1
(D-59)	(a)08/07/76	"	< 1	NR	< 1
Indicator Station	(a)09/11/76	"	< 1	NR	< 1
	(a)09/25/76	"	< 1	NR	< 1
	09/04/76	"	< 1	NR	< 1
	10/03/76	"	< 1	NR	< 1
	11/07/76	"	< 1	NR	< 1
	(a)12/24/76	"	< 1	NR	< 1
Mather Farm	07/03/76	Grass	< 1	NR	< 1
(D-53)	(a)08/07/76	"	< 1	NR	< 1
Background Station	09/04/76	"	< 1	NR	< 1
	(a)09/11/76	"	< 1	NR	< 1
	(a)09/25/76	"	< 1	NR	< 1
	10/03/76	"	< 1	NR	< 1
	11/07/76	"	< 1	NR	< 1
	(a)12/24/76	"	< 1	NR	< 1

NR = Not required.

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ . Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

(a) Special collection.

TABLE 5.5-1

RADIONUCLIDE CONCENTRATIONS IN PRECIPITATION

July - December 1976

Collection Site	Collection Date	Gross Beta (pCi/l)	Gross Beta (pCi/m^2)	H-3 as Water (pCi/l)
D-17 On-Site 2	July	18 ± 4	260 ± 60	250 ± 100
	Aug.	107 ± 21	424 ± 87	< 200
	Sept.	49 ± 3	800 ± 80	330 ± 130
	Oct.	749 ± 62	1142 ± 135(a)	< 800
	Nov.	85 ± 9	1100 ± 100(a)	160 ± 100
	Dec.	17 ± 9	180 ± 95	< 200
D-30 Davidson Farm	July	5 ± 3	280 ± 180	160 ± 100
	Aug.	68 ± 29	198 ± 84	< 200
	Sept.	15 ± 3	380 ± 40	290 ± 130
	Oct.	136 ± 12	435 ± 53	<1300
	Nov.	530 ± 50	12,000 ± 2000(a)	190 ± 100
	Dec.	26 ± 14	138 ± 74	< 300
D-32 Brandon Lock	July	9 ± 3	690 ± 270	210 ± 100
	Aug.	84 ± 20	270 ± 64	< 200
	Sept.	28 ± 4	700 ± 80	620 ± 150
	Oct.	101 ± 10	816 ± 74	<1300
	Nov.	72 ± 8	1100 ± 100(a)	190 ± 100
	Dec.	9 ± 4	143 ± 64	< 200
D-53 Mather Farm	July	4 ± 3	320 ± 250	270 ± 100
	Aug.	24 ± 4	336 ± 56	< 200
	Sept.	25 ± 4	550 ± 60	< 200
	Oct.	150 ± 10	742 ± 53	<1300
	Nov.	43 ± 5	830 ± 100	200 ± 100
	Dec.	9 ± 4	143 ± 64	< 200

ADDITIONAL ANALYSIS OF PRECIPITATION SAMPLES

Collection Site	Collection Date	pCi/l Cs-137	pCi/l Other Gamma*
D-17 On-Site 2	12/04/76	< 10	< 10
D-30 Davidson Farm	12/04/76	< 10	< 10
D-32 Brandon Lock	12/04/76	< 10	< 10
D-53 Mather Farm	12/04/76	< 10	< 10

*Traces of Zr-95, Nb-95, and Ce-141 detected but not quantified at concentrations below sensitivity requirements.

Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.

(a) Unusual readings; refer to Sections 5.0 and 5.5.

TABLE 5.5-2

GAMMA ISOTOPIC, GROSS BETA AND Sr-89, Sr-90 ANALYSIS OF SOIL SAMPLES

D-30 Davidson Farm

Collection Date	pCi/g (Dry) Gross Beta	Sr-89	Sr-90	Gamma*
07/03/76	4 ± 1	< 2	< 1	< 1
08/07/76(a)	3 ± 1	< 2	< 1	< 1
09/11/76(a)	5 ± 1	< 2	< 1	< 1
09/25/76(a)	4 ± 1	< 2	< 1	< 1
10/03/76	3 ± 1	< 2	< 1	< 1
12/24/76(a)	9 ± 1	< 2	< 1	< 1

D-59 Dorin Farm

Collection Date	pCi/g (Dry) Gross Beta	Sr-89	Sr-90	Gamma*
07/03/76	4 ± 1	< 2	< 1	< 1
08/07/76(a)	6 ± 1	< 2	< 1	< 1
09/11/76(a)	4 ± 1	< 2	< 1	< 1
09/25/76(a)	3 ± 1	< 2	< 1	< 1
10/03/76	3 ± 1	< 2	< 1	< 1
12/24/76(a)	5 ± 1	< 2	< 1	< 1

D-53 Mather Farm

Collection Date	pCi/g (Dry) Gross Beta	Sr-89	Sr-90	Gamma*
08/07/76(a)	3 ± 1	< 2	< 1	< 1
09/11/76(a)	5 ± 1	< 2	< 1	< 1
09/25/76(a)	4 ± 1	< 2	< 1	< 1
10/03/76	4 ± 1	< 2	< 1	< 1
12/24/76(a)	7 ± 1	< 2	< 1	< 1

D-27 Thorsen Farm

Collection Date	pCi/g (Dry) Gross Beta	Sr-89	Sr-90	Gamma*
07/03/76	< 1	< 2	< 1	< 1
09/11/76(a)	8 ± 1	< 2	< 1	< 1
09/25/76(a)	10 ± 8	< 2	< 1	< 1
10/03/76	3 ± 1	< 2	< 1	< 1
12/24/76(a)	9 ± 1	< 2	< 1	< 1

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

(a) Special Collection.

TABLE 5.6-1

RADIOACTIVITY IN VEGETABLES

Collection Site	Collection Date	Sample Type	pCi/g (Wet) Gross β	Sr-89	Sr-90	Cs-137	Other Gamma*
(D-49)	07/31/76	Turnips	< 1	< 2	< 1	< 1	< 1
Rousonellis Trk	07/31/76	Collords	< 1	< 2	< 1	< 1	< 1
Farm	07/31/76	Green Beans	< 1	< 2	< 1	< 1	< 1
	08/13/76	Beets	8 ± 1	< 2	< 1	< 1	< 1
	08/13/76	Corn	4 ± 1	< 2	< 1	< 1	< 1
	08/13/76	Beans	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Beets	3 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Collards	6 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Green Beans	1 ± 1	< 2	< 1	< 1	< 1
(D-50)	07/31/76	Cucumber	< 1	< 2	< 1	< 1	< 1
Glasscock Trk	07/31/76	Cabbage	< 1	< 2	< 1	< 1	< 1
Farm	07/31/76	Green Beans	< 1	< 2	< 1	< 1	< 1
	08/13/76	Beets	< 1	< 2	< 1	< 1	< 1
12 mi NE of	08/13/76	Squash	5 ± 1	< 2	< 1	< 1	< 1
station	08/13/76	Cucumbers	1 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Cucumbers	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Beets	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Cabbage	2 ± 1	< 2	< 1	< 1	< 1
(D-51)	07/31/76	Cucumbers	< 1	< 2	< 1	< 1	< 1
Girot Truck	07/31/76	Corn	1 ± 1	< 2	< 1	< 1	< 1
Farm	08/13/76	Tomatoes	2 ± 1	< 2	< 1	< 1	< 1
	08/13/76	Squash	1 ± 1	< 2	< 1	< 1	< 1
10 mi NE of	08/13/76	Cucumbers	< 1	< 2	< 1	< 1	< 1
station	09/04/76	Cucumbers	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Peppers	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Tomatoes	2 ± 1	< 2	< 1	< 1	< 1
(D-48)	07/31/76	Cabbage	1 ± 1	< 2	< 1	< 1	< 1
Phillips Farm	07/31/76	Yellow Squash	< 1	< 2	< 1	< 1	< 1
	07/31/76	Onions	1 ± 1	< 2	< 1	< 1	< 1
	08/13/76	Squash	6 ± 1	< 2	< 1	< 1	< 1
	08/13/76	Onions	3 ± 1	< 2	< 1	< 1	< 1
	08/13/76	Cabbage	< 1	< 2	< 1	< 1	< 1
	09/04/76	Cabbage	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Squash	2 ± 1	< 2	< 1	< 1	< 1
	09/04/76	Tomatoes	2 ± 1	< 2	< 1	< 1	< 1

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TABLE 5.7-1

GROSS BETA AND TRITIUM IN WELL WATER SAMPLES

Collection Site	Collection Date	Gross Beta (pCi/1)	Tritium (pCi/1)
(D-24) Dresden Well 1	07/03/76	24 ± 4	< 100
Indicator Station	10/03/76	25 ± 5	200 ± 100
(D-25) Dresden Well 2	08/07/76	22 ± 5	< 100
Indicator Station	11/07/76	38 ± 6	< 140
(D-27) Thorsen Farm	07/03/76	8 ± 2	< 100
Indicator Station	10/03/76	4 ± 3	360 ± 150
(D-09) Bennitt Farm	07/03/76	15 ± 7	NR
Indicator Station	10/03/76	9 ± 8	NR
(D-10) Hansel	07/03/76	24 ± 4	NR
Background Station	10/03/76	13 ± 5	NR
(D-12) Breen	08/07/76	35 ± 6	NR
Background Station	11/07/76	16 ± 5	NR
(D-23) Dresden Lock and Dam	07/03/76	18 ± 3	NR
	08/07/76	17 ± 4	NR
	09/04/76	27 ± 3	NR
	10/03/76	25 ± 5	NR
	11/07/76	21 ± 5	NR
	12/04/76	20 ± 4	NR
(D-26) Drinking Fountain	08/07/76	18 ± 5	NR
Unit 1	11/07/76	27 ± 5	NR
(D-28) Anderson Farm	08/07/76	16 ± 5	NR
Indicator Station	11/07/76	23 ± 5	NR
(D-29) Olson Farm	08/07/76	13 ± 5	NR
Background Station	11/07/76	20 ± 5	NR

NR = not required.

Data reported as "<" are at the 99% confidence level. All other data are at the 95% confidence level, all based on counting errors.

TA .8-1

SPECIAL COLLECTIONS

Collection Site	Collection Date	Sample Type	pCi/g (±2σ) as received			
			Gross β	Sr-89	Sr-90	Gamma Emitters*
D-30 Davidson Farm	08/07/76	Soil	3.3 ± 0.7	< 2	< 1	< 1
D-53 Mather Farm	08/07/76	Soil	3.2 ± 0.8	< 2	< 1	< 1
D-59 Dorin Farm	08/07/76	Soil	5.7 ± 0.8	< 2	< 1	< 1
D-30 Davidson Farm	08/07/76	Grass	47.7 ± 3.0	< 2	< 1	< 1
D-53 Mather Farm	08/07/76	Grass	37.3 ± 2.6	< 2	< 1	< 1
D-59 Dorin Farm	08/07/76	Grass	16.2 ± 1.8	< 2	< 1	< 1
D-27 Thorsen Farm	09/11/76	Soil	7.5 ± 0.8	< 2	< 1	< 1
D-30 Davidson Farm	09/11/76	Soil	5.2 ± 0.8	< 2	< 1	< 1
D-53 Mather Farm	09/11/76	Soil	5.0 ± 0.7	< 2	< 1	< 1
D-59 Dorin Farm	09/11/76	Soil	3.6 ± 0.6	< 2	< 1	< 1
D-27 Thorsen Farm	09/11/76	Grass	13.0 ± 3.0	< 2	< 1	< 1
D-30 Davidson Farm	09/11/76	Grass	42.0 ± 5.0	< 2	< 1	< 1
D-53 Mather Farm	09/11/76	Grass	33.0 ± 4.0	< 2	< 1	< 1
D-59 Dorin Farm	09/11/76	Grass	24.0 ± 3.0	< 2	< 1	< 1
D-27 Thorsen Farm	09/25/76	Soil	9.9 ± 8.1	< 2	< 1	< 1
D-30 Davidson Farm	09/25/76	Soil	4.0 ± 1.0	< 2	< 1	< 1
D-53 Mather Farm	09/25/76	Soil	4.4 ± 0.9	< 2	< 1	< 1
D-59 Dorin Farm	09/25/76	Soil	2.7 ± 0.8	< 2	< 1	< 1
D-27 Thorsen Farm	09/25/76	Grass	11.0 ± 2.0	< 2	< 1	< 1
D-30 Davidson Farm	09/25/76	Grass	11.0 ± 2.0	< 2	< 1	< 1
D-53 Mather Farm	09/25/76	Grass	13.0 ± 2.0	< 2	< 1	< 1
D-59 Dorin Farm	09/25/76	Grass	9.0 ± 2.0	< 2	< 1	< 1
D-27 Thorsen Farm	12/04/76	Snow	NR	< 5	< 2	<10
D-30 Davidson Farm	12/04/76	Snow	NR	< 5	< 2	<10
D-53 Mather Farm	12/04/76	Snow	NR	< 5	< 2	<10
D-59 Dorin Farm	12/04/76	Snow	NR	< 5	< 1	<10

NR = Not required.

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TABLE 5.8-1 (Cont'd)

SPECIAL COLLECTION

Collection Site	Collection Date	Sample Type	pCi/g (±2σ) as received				
			Gross Beta	Sr-89	Sr-90	Cs-137	Other Gamma
D-27 Thorsen Farm	12/24/76	Grass	18 ± 2	< 2	< 1	< 1	< 1
D-30 Davidson Farm	12/24/76	Grass	9 ± 2	< 2	< 1	< 1	< 1
D-53 Mather Farm	12/24/76	Grass	7 ± 1	< 2	< 1	< 1	< 1
D-59 Dorin Farm	12/24/76	Grass	8 ± 1	< 2	< 1	< 1	< 1
D-27 Thorsen Farm	12/24/76	Soil	9 ± 1	< 2	< 1	< 1	< 1
D-30 Davidson Farm	12/24/76	Soil	9 ± 1	< 2	< 1	< 1	< 1
D-53 Mather Farm	12/24/76	Soil	7 ± 1	< 2	< 1	< 1	< 1
D-59 Dorin Farm	12/24/76	Soil	5 ± 1	< 2	< 1	< 1	< 1

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TABLE 5.8-2

GAMMA ISOTOPIC* ANALYSIS OF WELL WATER
D-1 RADWASTE AREA

Collection Date	mg/l	Filterable Solids pCi/g solids	Filterable Solids pCi/l	Filtered Water pCi/l
08/13/76	24	< 170	< 10	< 10
10/16/76	31	(1)	(2)	< 40
11/27/76	190	< 50	< 10	< 10

(1) Co-60 = 620 ± 300 pCi/g, others < 200 pCi/g.
(2) Co-60 = 20 pCi/l, others < 10 pCi/l.
*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TABLE 5.8-3

GAMMA ISOTOPIC* ANALYSIS OF SOIL SAMPLES+

Lab No.	Customer Identification	Collection Date	pCi/g Cs-134	Cs-137	Mn-54	Co-60	Others
M24712	No. 1	10/14/76	260 ± 26	1000 ± 100	100 ± 10	3000 ± 300	< 1
M25511	2-108	10/22/76	5 ± 2	20 ± 4	7 ± 2	220 ± 20	< 1
M25512	2-125	10/23/76	90 ± 10	390 ± 40	4 ± 1	200 ± 20	< 1
M25513	2-106	10/24/76	55 ± 6	280 ± 30	2 ± 1	120 ± 10	< 1
M25514	2-122	10/25/76	40 ± 5	175 ± 20	3 ± 1	230 ± 20	< 1
M25515	2-106	10/26/76	80 ± 8	330 ± 30	3 ± 1	280 ± 30	< 1
M25516	3036	10/27/76	20 ± 3	100 ± 10	4 ± 1	95 ± 10	< 1

+Collected in restricted area.

*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

TAB .0-1

ADDITIONAL DATA FOR THE PERIOD JANUARY - JUNE 1976

Collection Site	Collection Date	Sample Type	Wt. Ratio Wet - Dry	pCi/g (Dry) Gross Beta	Sr-89	Sr-90	Gamma Emitters*
(D-19) Inlet Canal	06/06/76	Aquatic Plants	8.22	15 ± 2	< 2	< 1	< 1
(D-20-1) Disch. Canal**	06/06/76	Aquatic Plants	6.21	27 ± 2	< 2	< 1	< 1
(D-20-2/3) Disch. Canal**							

Collection Site	Collection Date	Sample Type	pCi/l Gross Beta	Sr-89	Sr-90	Gamma Emitters*
(D-23) Dresden Lock and Dam	02/07/76	Surface Water	4 ± 4	< 1	2.7 ± 1.2	< 5
	05/08/76	Surface Water	10 ± 3	< 5	< 2	<10

Collection Site	Collection Date	Sample Type	Gross Beta (pCi/l)	Gross Beta (pCi/m²)	H-3 as Water (pCi/l)
D-17 On-Site 2	07/03/76	Precipitation	Insufficient sample for analysis		
D-30 Davidson Farm	07/03/76	"	"	"	"
D-32 Brandon Lock	07/03/76	"	"	"	"
D-52 Mather Farm	07/03/76	"	"	"	"

**D-20-1 and D-20-2/3 were run as a composite due to a misunderstanding.
*The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here. Data listed as "<" are at the 3σ level, others are 2σ. Listed concentration is for Cs-137 and may be slightly more or less sensitive for other nuclides.

APPENDIX II

METEOROLOGICAL DATA

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JULY - SEPTEMBER 1976
STABILITY CLASS - EXTREMELY UNSTABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	1	10	10	0	0	0	21
NNE	0	26	49	3	0	0	78
NE	0	15	16	3	0	0	34
ENE	2	9	1	0	0	0	12
E	0	8	4	0	0	0	12
ESE	1	7	0	0	0	0	8
SE	2	16	5	0	0	0	23
SSE	0	9	1	0	0	0	10
S	0	11	0	0	0	0	11
SSW	0	9	2	1	0	0	12
SW	0	4	13	18	2	0	37
WSW	0	12	28	6	0	0	46
W	0	11	8	0	0	0	19
WNW	0	4	0	1	0	0	5
NW	1	8	7	5	0	0	21
NNW	0	12	8	15	0	0	35
VARIABLE	2	0	0	0	0	0	2
TOTAL	9	171	152	52	2	0	386

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 1976
STABILITY CLASS - MODERATELY UNSTABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	0	1	4	0	0	0	5
NNE	0	1	3	0	0	0	4
NE	0	0	2	3	0	0	5
ENE	0	1	1	0	0	0	2
E	0	2	2	0	0	0	4
ESE	0	1	1	0	0	0	2
SE	0	2	2	0	0	0	4
SSE	0	4	2	0	0	0	6
S	0	5	0	0	0	0	5
SSW	1	3	6	2	0	0	12
SW	1	4	1	0	0	0	6
WSW	2	3	3	1	0	0	9
W	1	1	4	0	0	0	6
WNW	0	2	1	0	0	0	3
NW	0	2	4	0	0	0	6
NNW	0	5	4	1	0	0	10
VARIABLE	0	0	0	0	0	0	0
TOTAL	5	37	40	7	0	0	89

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 1976
STABILITY CLASS - SLIGHTLY UNSTABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	0	2	2	0	0	0	4
NNE	0	6	1	0	0	0	7
NE	1	2	8	1	0	0	12
ENE	0	4	0	0	0	0	4
E	0	5	0	0	0	0	5
ESE	0	2	1	0	0	0	3
SE	0	6	1	0	0	0	7
SSE	1	3	2	0	0	0	6
S	1	3	0	0	0	0	4
SSW	0	4	3	3	0	0	10
SW	0	2	3	2	0	0	7
WSW	1	6	4	2	0	0	13
W	1	3	2	0	0	0	6
WNW	1	2	1	1	0	0	5
NW	0	2	9	0	0	0	11
NNW	0	3	2	0	0	0	5
VARIABLE	1	0	0	0	0	0	1
TOTAL	7	55	39	9	0	0	110

HOURS OF CALM IN THIS STABILITY CLASS - 1
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 1976
STABILITY CLASS - NEUTRAL (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	4	10	3	0	0	0	17
NNE	0	12	5	0	0	0	17
NE	3	18	32	4	0	0	57
ENE	0	32	14	0	0	0	46
E	2	16	5	0	0	0	23
ESE	2	10	1	0	0	0	13
SE	4	12	0	0	0	0	16
SSE	4	24	11	1	0	0	40
S	4	29	20	12	0	0	65
SSW	5	16	25	8	1	0	55
SW	4	15	15	7	0	0	41
WSW	1	9	12	3	0	0	25
W	4	10	8	5	0	0	27
WNW	3	7	7	5	0	0	22
NW	3	10	15	2	0	0	30
NNW	1	11	7	1	0	0	20
VARIABLE	8	0	0	0	0	0	8
TOTAL	52	241	180	48	1	0	522

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 1976
STABILITY CLASS - SLIGHTLY STABLE (DELTA T 150-35 FT
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	3	23	5	0	0	0	31
NNE	1	22	0	1	0	0	24
NE	1	19	10	1	0	0	31
ENE	6	14	3	0	0	0	23
E	5	23	10	0	0	0	38
ESE	9	30	0	0	0	0	39
SE	4	18	0	0	0	0	22
SSE	6	35	17	0	0	0	58
S	11	26	30	13	0	0	80
SSW	7	33	20	9	0	0	69
SW	3	24	11	3	1	0	42
WSW	2	22	12	3	0	0	39
W	1	19	6	6	0	0	32
WNW	3	15	6	8	0	0	32
NW	1	14	16	2	0	0	33
NNW	3	24	4	0	0	0	31
VARIABLE	28	0	0	0	0	0	28
TOTAL	94	361	150	46	1	0	652

HOURS OF CALM IN THIS STABILITY CLASS - 1
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 1976
STABILITY CLASS - MODERATELY STABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	3	4	0	0	0	0	7
NNE	2	10	1	0	0	0	13
NE	1	4	1	0	0	0	6
ENE	2	1	0	0	0	0	3
E	1	2	0	0	0	0	3
ESE	4	8	0	0	0	0	12
SE	2	8	2	0	0	0	12
SSE	4	4	6	0	0	0	14
S	3	19	19	0	0	0	41
SSW	7	18	3	0	0	0	28
SW	6	24	3	0	0	0	33
WSW	10	18	4	0	0	0	32
W	11	14	2	0	0	0	27
WNW	5	14	1	0	0	0	20
NW	7	12	0	0	0	0	19
NNW	6	12	1	0	0	0	19
VARIABLE	39	0	0	0	0	0	39
TOTAL	113	172	43	0	0	0	328

HOURS OF CALM IN THIS STABILITY CLASS - 4
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 1976
STABILITY CLASS - EXTREMELY STABLE (DELTA T 150-35 FT
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	2	0	0	0	0	0	2
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	0	0	0	0	0	0
ESE	0	3	0	0	0	0	3
SE	0	0	0	0	0	0	0
SSE	1	4	0	0	0	0	5
S	1	7	0	0	0	0	8
SSW	2	4	0	0	0	0	6
SW	3	14	2	0	0	0	19
WSW	1	8	0	0	0	0	9
W	2	2	0	0	0	0	4
WNW	7	3	0	0	0	0	10
NW	9	11	0	0	0	0	20
NNW	4	10	0	0	0	0	14
VARIABLE	13	0	0	0	0	0	13
TOTAL	45	67	2	0	0	0	114

HOURS OF CALM IN THIS STABILITY CLASS - 1
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 1976
STABILITY CLASS - EXTREMELY UNSTABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	1	17	31	4	0	0	53
NNE	1	10	7	2	0	0	20
NE	2	2	1	2	0	0	7
ENE	1	4	2	0	0	0	7
E	1	10	5	0	0	0	16
ESE	0	12	16	2	0	0	30
SE	0	8	13	0	0	0	21
SSE	0	2	6	1	0	0	9
S	0	4	3	4	0	0	11
SSW	1	7	14	8	5	0	35
SW	2	5	6	15	2	0	30
WSW	2	12	9	22	0	0	45
W	2	17	36	9	2	0	66
WNW	1	10	40	17	9	0	77
NW	1	8	38	30	4	0	81
NNW	1	27	54	17	0	0	99
VARIABLE	0	0	0	0	0	0	0
TOTAL	16	155	281	133	22	0	607

HOURS OF CALM IN THIS STABILITY CLASS - 1
HOURS OF MISSING WIND MEASUREMENTS IN THIS STABILITY CLASS - 57

HOURS OF MISSING STABILITY MEASUREMENTS IN ALL STABILITY CLASSES - 0

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - OCTOBER - DECEMBER 1976
STABILITY CLASS - MODERATELY UNSTABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	1	5	12	0	0	0	18
NNE	0	0	1	0	0	0	1
NE	0	1	2	0	0	0	3
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	1
SE	0	0	1	0	0	0	1
SSE	0	0	1	0	0	0	1
S	0	0	0	2	1	0	3
SSW	0	0	0	1	1	0	2
SW	0	0	1	1	0	0	2
WSW	0	1	1	0	0	0	2
W	0	0	1	0	0	0	1
WNW	0	1	3	4	0	0	8
NW	0	0	2	1	1	0	4
NNW	0	0	7	1	0	0	8
VARIABLE	1	0	0	0	0	0	1
TOTAL	2	9	32	10	3	0	56

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 - OCTOBER - DECEMBER 1976
STABILITY CLASS - SLIGHTLY UNSTABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	0	2	1	3	0	0	6
NNE	0	2	3	0	0	0	5
NE	0	0	2	0	0	0	2
ENE	0	0	0	0	0	0	0
E	1	1	0	0	0	0	2
ESE	1	1	1	0	0	0	3
SE	0	1	2	0	0	0	3
SSE	0	0	2	0	0	0	2
S	0	2	2	2	0	0	6
SSW	0	2	2	0	0	0	4
SW	0	0	0	3	0	0	3
WSW	1	0	1	0	0	0	2
W	0	0	4	0	0	0	4
WNW	0	0	11	2	0	0	13
NW	0	3	5	2	0	0	10
NNW	0	0	10	3	0	0	13
VARIABLE	0	0	0	0	0	0	0
TOTAL	3	14	46	15	0	0	78

HOURS OF CALM IN THIS STABILITY CLASS - 0
HOURS OF MISSING WIND MEASUREMENTS IN THIS STABILITY CLASS - 14

HOURS OF MISSING STABILITY MEASUREMENTS IN ALL STABILITY CLASSES - 0

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - OCTOBER - DECEMBER 1976
STABILITY CLASS - NEUTRAL (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	1	8	12	7	0	0	28
NNE	1	5	4	3	0	0	13
NE	1	7	4	0	0	0	12
ENE	0	1	2	0	0	0	3
E	1	6	3	0	0	0	10
ESE	0	10	5	0	0	0	15
SE	0	7	4	0	0	0	11
SSE	1	8	10	3	0	0	22
S	2	10	6	12	2	0	32
SSW	1	7	17	8	5	0	38
SW	1	10	8	7	3	0	29
WSW	0	3	6	6	0	0	15
W	1	13	23	6	0	0	43
WNW	0	7	36	30	1	0	74
NW	0	14	33	16	0	0	63
NNW	0	11	40	8	1	0	60
VARIABLE	4	0	0	0	0	0	4
TOTAL	14	127	213	106	12	0	472

HOURS OF CALM IN THIS STABILITY CLASS - 0
HOURS OF MISSING WIND MEASUREMENTS IN THIS STABILITY CLASS - 61

HOURS OF MISSING STABILITY MEASUREMENTS IN ALL STABILITY CLASSES - 0

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - OCTOBER - DECEMBER 1976
STABILITY CLASS - SLIGHTLY STABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	1	5	2	0	0	0	8
NNE	2	3	0	0	0	0	5
NE	1	5	0	0	0	0	6
ENE	0	1	1	0	0	0	2
E	1	1	0	0	0	0	2
ESE	1	4	1	0	0	0	6
SE	0	5	1	0	0	0	6
SSE	3	9	9	0	0	0	21
S	1	8	9	20	1	1	40
SSW	3	7	11	13	18	2	54
SW	6	17	30	2	4	0	59
WSW	1	10	12	5	0	0	28
W	1	24	28	8	0	0	61
WNW	3	23	51	13	0	0	90
NW	0	23	21	20	5	0	69
NNW	0	18	10	1	1	0	30
VARIABLE	7	0	0	0	0	0	7
TOTAL	31	163	186	82	29	3	494

HOURS OF CALM IN THIS STABILITY CLASS - 0
HOURS OF MISSING WIND MEASUREMENTS IN THIS STABILITY CLASS - 38

HOURS OF MISSING STABILITY MEASUREMENTS IN ALL STABILITY CLASSES - 0

ORESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - OCTOBER - DECEMBER 1976
STABILITY CLASS - MODERATELY STABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	2	5	0	0	0	0	7
NNE	2	1	0	0	0	0	3
NE	3	3	0	0	0	0	6
ENE	1	3	0	0	0	0	4
E	0	0	0	0	0	0	0
ESE	1	10	3	0	0	0	14
SE	2	6	1	0	0	0	9
SSE	2	4	8	0	0	0	14
S	4	14	7	1	0	0	26
SSW	5	15	5	0	0	0	25
SW	6	22	3	0	0	0	31
WSW	2	12	5	1	0	0	20
W	4	19	3	0	0	0	26
WNW	2	10	8	0	0	0	20
NW	7	6	3	1	0	0	17
NNW	2	5	0	0	0	0	7
VARIABLE	13	0	0	0	0	0	13
TOTAL	58	135	46	3	0	0	242

HOURS OF CALM IN THIS STABILITY CLASS - 2
HOURS OF MISSING WIND MEASUREMENTS IN THIS STABILITY CLASS - 6

HOURS OF MISSING STABILITY MEASUREMENTS IN ALL STABILITY CLASSES - 0

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - OCTOBER - DECEMBER 1976
STABILITY CLASS - EXTREMELY STABLE (DELTA T 150-35 FT)
WINDS MEASURED AT 35 FEET

WIND DIRECTION	WIND SPEED (IN MPH) 1- 3	4- 7	8-12	13-18	19-24	GT 24	TOTAL
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	10	0	0	0	0	10
SE	0	5	0	0	0	0	5
SSE	1	1	0	0	0	0	2
S	5	2	2	0	0	0	9
SSW	1	10	0	0	0	0	11
SW	6	5	0	0	0	0	11
WSW	1	4	0	0	0	0	5
W	0	2	2	0	0	0	4
WNW	1	3	0	0	0	0	4
NW	3	1	0	0	0	0	4
NNW	1	1	0	0	0	0	2
VARIABLE	4	0	0	0	0	0	4
TOTAL	23	44	4	0	0	0	71

HOURS OF CALM IN THIS STABILITY CLASS - 1
HOURS OF MISSING WIND MEASUREMENTS IN THIS STABILITY CLASS - 1

HOURS OF MISSING STABILITY MEASUREMENTS IN ALL STABILITY CLASSES - 0

APPE[redacted]III

Dresden Station

1976 Report of Occupational Personnel Radiation Doses

Commonwealth Edison Employees

Job Function	Work Function: Reactor Operations & Surveillance # of people/man-rem	Routine Maint. & Inservice Inspection # of people/man-rem	Waste Processing # of people/man-rem	Refueling # of people/man-rem
Maintenance	5 / 5.	147 / 318.	-	-
Operating	111 / 122.	33 / 90.	19 / 53.	17 / 39.
Health Physics	7 / 22.	21 / 70.	2 / 7.	-
Supervisory	53 / 15.	86 / 52.	-	4 / 6.
Engineering	40 / 46.	92 / 42.	-	-
Contract Workers				
Maintenance	-	2162 / 720.	-	-
Special Maintenance	54 / 9.* Δ			

*Company employees other than station employees

Δ Work on firestops and cable runs.