DRESDEN NUCLEAR POWER STATION

RADIOACTIVE WASTE, ENVIRONMENTAL MONITORING AND

OCCUPATIONAL PERSONNEL RADIATION EXPOSURE

JANUARY THROUGH JUNE 1975

Rec'd w/ltr 8/28/75

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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 Midwest Fuel Recovery Plant (MFRP) 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.

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 results from continuous exposure to the concentration value listed in Appendix B, Table II of 10CFR20. 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 6 mrem for the six-month period, 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 January through 30 June 1975, are listed in Table 1.1-1 and 1.1-2. A six-month total of 6.9 E+05 curies of noble gases was released during the period with a maximum release rate during any one-hour period of 9.2 E+04 μCi/sec. Release rates during any one month of the period did not exceed 6.7% of the Technical Specification limit.

A total of 0.83curies of I-131 was released during the six-month period. The highest monthly radioiodine release was 2.6% of the Technical Specification limit.

A six-month total of 1.96curies of beta-gamma emitters and non-detectable amounts of alpha emitters was released as airborne particulate matter. The highest monthly release of beta-gamma particulate activity was 7.5% of the Technical Specification limit.

1.2 LIQUIDS RELEASED TO ILLINOIS RIVER

A total of 1.2 E + 07 liters of radioactive liquid wastes containing 1.0curies (excluding tritium) were discharged from the station. These wastes were released at a maximum monthly average concentration of 4.1 E-09 μCi/ml from Unit 1 and 1.1 E-08 μCi/ml from Units 2 and 3 which are 4.1 % and 10.5 % respectively of the Technical Specification release limits for unidentified radioactivity. During the same period, 44.2 curies of tritium and0.4 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 either Nuclear Engineering Company, Sheffield, Illinois or 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

Docket No. 50-10

FACILITY: DRESDEN NUCLEAR POWER STATION - Unit 1 YEAR: 1975

Gaseous Effluents	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
1. Gross Radioactivity Releases								
a) Total Release	Curies	3.3 E+04	6.2 E+04	5.9 E+04	4.1 E+04	9.9 E+04	6.6 E+04	3.6 E+05
b) Maximum Release Rate	µCi/sec	3.5 E+04	4.6 E+04	4.1 E+04	9.2 E+04	6.2 E+04	4.4 E+04	9.2 E+04
c) Isotopes Released	Curies							
Kr- 85m		7.0 E+02	1.2 E+03	1.3 E+03	.9 E+03	1.6 E+03	1.2 E+03	6.9 E+03
Kr- 87		3.0 E+03	8.1 E+03	6.8 E+03	4.6 E+03	7.6 E+03	7.4 E+03	3.8 E+04
Kr- 88		2.1 E+03	4.4 E+03	6.8 E+03	3.4 E+03	8.2 E+03	6.3 E+03	3.1 E+04
Xe-133		1.4 E+03	2.6 E+03	3.6 E+03	1.4 E+03	5.1 E+03	3.6 E+03	1.8 E+04
Xe-135		4.2 E+03	8.4 E+03	9.2 E+03	5.4 E+03	1.1 E+04	8.8 E+03	4.7 E+04
Xe-135m		9.0 E+03	1.1 E+04	9.9 E+03	7.2 E+03	2.1 E+04	1.2 E+04	7.1 E+04
Xe-138		1.3 E+04	2.6 E+04	2.1 E+04	1.8 E+04	4.4 E+04	2.6 E+04	1.5 E+05
d) % of Chimney Limit	%	2.2	4.57	3.93	2.80	6.60	4.54	NA
e) Average Release Rate	µCi/sec	1.2 E+04	2.56E+04	2.20E+04	1.6 E+04	3.7 E+04	2.5 E+04	2.3 E+04
2. Iodine Releases								
a) Isotopes Released	Curies							
I-131		1.7 E-01	6.90E-02	1.39E-01	9.0 E-03	4.9 E-02	4.8 E-02	4.8 E-01
I-133		6.9 E-01	3.08E-01	5.04E-01	3.6 E-02	2.2 E-02	1.7 E-01	1.9 E+00
I-135		7.3 E-01	3.98E-01	6.80E-01	6.80E-01	2.0 E-02	1.9 E-01	2.2 E+00
b) % of Chimney Limit	%	2.6	1.20	2.17	0.12	0.75	0.79	NA
c) Average Release Rate	µCi/sec	6.3 E-02	2.9 E-02	5.2 E-02	3.0 E-03	7.0 E-03	1.9 E-02	3.1 E-02

ND = Not Determined NA = Not Applicable

TABLE 1.1-1 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

Docket No. 50-10

FACILITY: DRESDEN NUCLEAR POWER STATION - Unit 1 YEAR: 1975

Gaseous Effluents (Cont'd)	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
3. Particulate Releases								
a) Gross Radioactivity (β-γ)	Curies	5.0 E-02	3.5 E-02	5.4 E-02	5.9 E-02	2.0 E-02	4.5 E-02	2.6 E-01
b) Gross Alpha Radioactivity	Curies	ND	ND	ND	ND	ND	ND	ND
c) Isotopes Released								
Mn- 54		3.0 E-04	1.0 E-04	1.0 E-04	1.0 E-04	1.0 E-04	1.0 E-04	8.0 E-04
Co- 58		1.5 E-03	4.0 E-04	3.7 E-03	3.0 E-04	-	3.0 E-04	6.2 E-03
Co- 60		1.0 E-03	3.0 E-04	2.0 E-03	7.0 E-04	-	6.0 E-04	4.6 E-03
Sr- 89		3.5 E-02	2.4 E-02	2.9 E-02	4.8 E-02	1.7 E-02	3.9 E-02	1.9 E-01
Sr- 90		1.0 E-04	1.0 E-04	1.0 E-04	1.0 E-04	1.0 E-04	1.0 E-04	6.0 E-04
I -131		1.1 E-03	5.0 E-04	2.5 E-03	9.0 E-04	-	7.0 E-04	5.7 E-03
Cs-134		6.0 E-04	1.0 E-04	9.0 E-04	3.0 E-04	1.0 E-04	2.0 E-04	2.2 E-03
Cs-137		1.6 E-03	8.0 E-04	1.9 E-03	1.1 E-03	3.0 E-04	8.0 E-04	6.5 E-03
Ba-140		9.2 E-03	9.1 E-03	1.4 E-02	4.6 E-03	2.2 E-03	3.7 E-03	4.3 E-02
d) % of Chimney Limit	%	0.75	0.60	0.83	0.92	0.32	0.71	NA
e) Average Release	μ Ci/sec	1.8 E-02	1.5 E-02	2.0 E-02	2.0 E-02	2.0 E-02	1.7 E-02	1.6 E-02
4. Sum of Iodines & Particulates								
a) % of Chimney Limit	%	3.38	1.80	3.00	1.04	1.07	1.50	NA
5. Tritium Release	Curies	1.7 E+00	1.7 E+00	2.6 E-01	7.4 E+00	8.3 E+00	6.4 E+00	2.6 E+01

ND = Not Determined NA = Not Applicable

TABLE 1.1-2

REPORT OF RADIOACTIVE EFFLUENTS

Docket Nos.: 50-237, 50-249

FACILITY: DRESDEN NUCLEAR POWER STATION - Units 2/3 YEAR: 1975

Gaseous Effluents	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
1. Gross Radioactivity Releases								
a) Total Release	Curies	7.3 E+04	6.2 E+04	1.3 E+05	5.9 E+04	4.0 E+02	1.3 E+03	3.3 E+05
b) Maximum Release Rate	µCi/sec	6.5 E+04	4.4 E+04	6.3 E+04	5.0 E+04	8.2 E+02	1.3 E+03	6.5 E+04
c) Isotopes Released	Curies							
Kr- 85m		3.6 E+03	2.9 E+03	6.8 E+03	3.1 E+03	3.2 E+02	1.0 E+02	1.7 E+04
Kr- 87		7.4 E+03	5.2 E+03	1.3 E+04	6.1 E+03	8.5 E+02	1.6 E+02	3.1 E+04
Kr- 88		2.0 E+04	1.6 E+04	3.2 E+04	1.4 E+04	1.1 E+02	3.1 E+02	8.1 E+04
Xe-133		1.5 E+04	1.5 E+04	2.7 E+04	1.2 E+04	6.0 E+03	0.8 E+02	6.9 E+04
Xe-135		2.8 E+04	2.4 E+04	5.2 E+04	2.4 E+04	1.8 E+02	6.5 E+02	1.3 E+05
Xe-135m								
Xe-138								
d) % of Chimney Limit	%	3.91	3.65	6.70	3.26	0.05	0.07	NA
e) % of Vent Stack Limit	%	NA	NA	NA	NA	NA	NA	NA
f) Average Release Rate	µCi/sec	2.7 E+04	2.6 E+04	4.7 E+04	2.3 E+04	1.5 E+02	5.0 E+02	2.1 E+04
2. Chimney Iodine Releases								
a) Isotopes Released	Curies							
I-131		9.3 E-02	7.80E-02	9.5 E-02	6.7 E-02	5.0 E-03	1.5 E-02	3.5 E-01
I-133		2.69E-01	6.01E-01	3.29E-01	2.12E-01	1.9 E-03	1.4 E-01	1.6 E+00
I-135		3.88E-01	3.88E-01	3.74E-01	2.82E-01	2.9 E-03	2.2 E-01	1.6 E+00
b) % of Chimney Limit	%	1.00	0.93	1.00	0.76	0.05	0.17	NA
c) Average Release Rate	µCi/sec	3.5 E-02	3.2 E-02	3.5 E-02	2.0 E-02	2.0 E-03	6.0 E-03	2.2 E-02

ND = Not Determined NA = Not Applicable

TABLE 1.1-2 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

Docket Nos.: 50-237, 50-249

FACILITY: DRESDEN NUCLEAR POWER STATION - Unit 2/3 YEAR: 1975

Gaseous Effluents (Cont'd)	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
3. Chimney Particulate Release								
a) Gross Radioactivity (β-γ)	Curies	2.9 E-01	3.7 E-01	7.03E-01	2.7 E-01	1.8 E-02	5.7 E-02	1.7 E+00
b) Gross Alpha Radioactivity	Curies	ND	ND	ND	ND	ND	ND	ND
c) Isotopes Released	Curies							
Mn- 54		2.9 E-03	7.0 E-04	5.0 E-04	1.0 E-03	ND	2.0 E-04	5.3 E-03
Co- 60		5.9 E-03	8.4 E-03	1.5 E-03	3.8 E-03	2.6 E-03	8.0 E-04	2.3 E-02
Sr- 89		1.1 E-01	1.4 E-01	2.8 E-01	1.5 E-01	2.9 E-03	3.2 E-02	7.3 E-01
Sr- 90		4.0 E-04	4.0 E-04	8.0 E-04	6.0 E-04	5.0 E-04	1.0 E-04	2.8 E-03
Mo- 99								
I -131		4.9 E-02	4.5 E-02	1.9 E-01	ND	ND	ND	2.8 E-01
Cs-134		1.0 E-04	-	1.0 E-04	3.4 E-03	1.2 E-03	7.0 E-04	5.5 E-03
Cs-137		1.0 E-04	2.2 E-03	3.7 E-03	6.3 E-03	ND	1.3 E-03	1.4 E-02
Ba-140		1.2 E-01	1.6 E-01	2.3 E-01	1.0 E-01	1.1 E-02	2.2 E-02	6.5 E-01
La-140								
Np-239								
Tc- 99m								
d) % of Chimney Limit	%	3.08	4.32	7.52	3.00	0.20	0.62	ND
e) Average Release Rate	µCi/sec	1.08E-01	1.51E-01	2.63E-01	1.05E-01	7.0 E-03	2.2 E-02	1.1 E-01
4. Vent Stack Iodine Release								
a) Isotopes Released	Curies							
I-131		6.0 E-03	8.0 E-03	6.0 E-03	7.7 E-03	6.0 E-03	6.0 E-03	5.8 E-02
I-133		7.0 E-03	1.2 E-02	3.2 E-02	3.0 E-02	6.0 E-03	2.0 E-01	2.9 E-01
I-135		ND	ND	ND	ND	ND	ND	ND
b) % of Vent Stack Limit	%	1.70	2.50	1.67	2.14	1.51	1.67	NA
c) Average Release Rate	µCi/sec	2.0 E-03	3.0 E-03	2.0 E-02	2.0 E-02	2.0 E-03	2.0 E-03	8.2 E-03

ND = Not Determined NA = Not Applicable

TABLE 1.1-2 (Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

Docket Nos.: 50-237, 50-249

FACILITY: DRESDEN NUCLEAR POWER STATION - Unit 2/3 YEAR: 1975

Gaseous Effluents (Cont'd)	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
5. Vent Stack Particulate Release								
a) Gross Radioactivity	Curies	7.6 E-02	4.3 E-02	6.3 E-02	4.14E-02	7.2 E-02	4.9 E-02	3.3 E-01
b) Gross Alpha Radioactivity	Curies	ND	ND	ND	ND	ND	ND	ND
c) Isotopes Released	Curies							
Cr- 51		2.2 E-03	-	-	-	-	-	2.2 E-03
Mn- 54		5.4 E-03	3.3 E-03	1.4 E-03	9.0 E-04	3.6 E-03	2.4 E-03	1.7 E-02
Co- 58		1.8 E-03	1.4 E-03	9.0 E-04	7.0 E-04	2.3 E-03	1.6 E-03	8.7 E-03
Co- 60		4.6 E-02	4.6 E-02	1.0 E-02	4.5 E-03	4.9 E-02	3.3 E-02	1.6 E-01
Sr- 89		3.1 E-03	9.0 E-04	4.3 E-03	9.9 E-03	3.1 E-03	2.0 E-03	2.3 E-02
Sr- 90		3.0 E-04	3.0 E-04	5.0 E-04	5.0 E-04	4.0 E-04	2.0 E-04	2.2 E-03
Mo- 99		1.3 E-03	ND	ND	ND	ND	ND	1.3 E-03
I -131		5.2 E-03	7.9 E-03	9.0 E-03	1.1 E-02	ND	ND	3.3 E-02
Cs-134		9.0 E-04	1.5 E-03	3.1 E-03	1.2 E-03	5.8 E-03	4.2 E-03	1.7 E-02
Cs-137		1.7 E-03	2.1 E-03	4.5 E-03	8.0 E-04	7.4 E-03	5.3 E-03	2.2 E-02
Ba-140		3.8 E-03	4.9 E-03	4.6 E-03	5.5 E-03	ND	ND	1.9 E-02
La-140		3.0 E-03	5.6 E-03	4.9 E-03	6.3 E-03	ND	ND	2.0 E-02
Nb- 95		ND	ND	7.0 E-04	ND	9.0 E-04	6.0 E-04	2.2 E-03
Tc- 99m		1.4 E-03	-	-	ND	ND	ND	1.4 E-03
d) % Vent Stack Limit	%	23.62	14.88	19.92	13.33	22.50	16.02	-
e) Average Release Rate	µCi/sec	2.8 E-02	1.8 E-02	2.3 E-02	1.6 E-02	2.7 E-02	1.9 E-02	2.2 E-02
6. Sum of Iodine and Particulate								
a) % of Chimney Limit	%	4.08	5.25	8.52	3.76	24.01	0.79	-
b) % of Vent Stack Limit	%	25.32	17.38	21.59	15.47	0.25	17.69	-
7. Tritium								
a) Release	Curies	30.64	26.83	76.12	10.68	1.04	17.62	162.92
b) Average Release Rate	µCi/sec	11.44	10.02	28.42	4.12	6.00	0.12	10.02
c) % Tech Spec Limit	%	NA	NA	NA	NA	NA	NA	NA

ND = Not Determined NA = Not Applicable

TABLE 1.2-1

REPORT OF RADIOACTIVE EFFLUENTS

Docket No.: 50-10

FACILITY: DRESDEN NUCLEAR POWER STATION - Unit 1 YEAR: 1975

Liquid Effluents	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
1. Gross Radioactivity (β-γ)								
a) Total Release	Curies	7.0 E-02	5.9 E-02	7.4 E-02	6.5 E-02	8.3 E-02	8.9 E-02	4.4 E-01
b) Aver. Concentration Released	µCi/ml	3.2 E-09	3.0 E-09	3.4 E-09	2.5 E-09	3.1 E-09	4.1 E-09	3.2 E-09
c) Max. Concentration Released	µCi/ml	8.5 E-08	3.9 E-08	4.0 E-08	3.6 E-08	3.6 E-08	5.3 E-03	5.3 E-08
d) % of Tech Spec Limit	%	3.22	3.01	3.44	2.49	3.16	4.12	NA
2. Tritium								
a) Total Release	Curies	2.3 E-05	1.5 E-06	1.1 E-04	1.7 E-03	1.3 E-01	1.1 E-01	2.4 E-01
b) Aver Concentration Released	µCi/ml	1.1 E-12	7.9 E-14	5.1 E-12	6.6 E-11	4.8 E-09	5.0 E-09	1.6 E-09
c) % of Tech Spec Limit	%							
3. Dissolved Noble Gases								
a) Total Release	Curies	ND	ND	ND	ND	ND	ND	ND
b) Aver Concentration Released	µCi/ml							
c) % of Tech Spec Limit	%							
4. Gross Alpha Radioactivity								
a) Total Release	Curies	9.3 E-06	2.0 E-05	6.3 E-04	2.7 E-05	7.6 E-05	8.3 E-05	8.5 E-04
b) Aver Concentration Released	µCi/ml	4.3 E-13	1.0 E-12	2.9 E-11	5.2 E-11	2.8 E-12	3.8 E-12	1.5 E-11
5. Volume of Liquid Waste to Discharge Canal	Liters	2.0 E+05	3.1 E+05	4.9 E+05	4.3 E+05	5.6 E+05	4.6 E+05	2.5 E+06
6. Volume of Dilution Water	Liters	2.2 E+10	2.0 E+10	2.2 E+10	2.6 E+10	2.7 E+10	2.2 E+10	1.4 E+11

ND = Not Determined NA = Not Applicable

TABLE 1.2-1(Cont'd)

REPORT OF RADIOACTIVE EFFLUENTS

Docket No.: 50-10

FACILITY: DRESDEN NUCLEAR POWER STATION - Unit 1 YEAR: 1975

Liquid Effluents (Cont'd)	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
7. Isotopes Released	Curies							
Cr- 51		-	-	3.8 E-03	-	-	-	3.8 E-03
Mn- 54		4.7 E-03	6.4 E-03	1.1 E-02	1.5 E-02	4.8 E-03	5.2 E-03	4.7 E-02
Co- 58		4.4 E-03	2.1 E-03	2.0 E-02	1.5 E-02	4.4 E-03	4.7 E-03	5.1 E-02
Co- 60		4.6 E-02	3.6 E-02	1.3 E-02	1.7 E-02	5.9 E-02	6.3 E-02	2.3 E-01
Sr- 89		2.3 E-04	6.0 E-04	1.2 E-03	3.8 E-03	2.3 E-03	2.5 E-03	1.1 E-02
Sr- 90		4.0 E-05	5.0 E-05	3.0 E-05	2.1 E-04	3.1 E-04	3.3 E-04	9.7 E-04
Zr- 95		-	-	-	-	-	-	-
Nb- 95m		-	-	-	-	-	-	-
Nb- 95		-	-	-	-	4.2 E-03	4.5 E-03	8.7 E-03
I -131		6.2 E-04	-	3.4 E-04	-	-	-	9.6 E-04
Cs-134		5.1 E-03	4.3 E-03	7.8 E-03	9.4 E-03	4.2 E-03	4.5 E-03	3.5 E-02
Cs-136		2.4 E-04	-	-	-	-	-	2.4 E-04
Cs-137		8.4 E-03	9.0 E-03	1.5 E-02	4.6 E-03	3.8 E-03	4.0 E-03	4.5 E-02
Ba-140		-	-	8.6 E-04	-	-	-	8.6 E-04
La-140		-	-	9.9 E-04	-	-	-	9.9 E-04

ND = Not Determined NA = Not Applicable

TABLE 1.2-2

REPORT OF RADIOACTIVE EFFLUENTS

Dockets Nos.: 50-237, 50-249

FACILITY: DRESDEN NUCLEAR POWER STATION - Units 2/3 YEAR: 1975

Liquid Effluents	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
1. Gross Radioactivity (β-γ)								
a) Total Release	Curies	NONE	2.0 E-02	8.9 E-02	7.0 E-03	2.3 E-01	1.4 E-01	5.5 E-01
b) Aver Concentration Released	μCi/ml	NONE	2.6 E-09	1.1 E-08	1.1 E-10	2.6 E-09	1.8 E-09	1.9 E-08
c) Max Concentration Released		NONE	3.4 E-08	4.5 E-08	2.3 E-08	4.3 E-08	4.3 E-08	4.5 E-08
d) % of Tech Spec Limit	%	NONE	2.61	10.50	0.10	2.59	1.75	NA
2. Tritium								
a) Total Release	Curies	NONE	2.2 E-04	5.3 E-04	4.4 E-03	2.5 E+01	1.9 E+01	4.4 E+01
b) Aver Concentration Released	μ Ci/ml	NONE	2.8 E-11	6.3 E-11	6.8 E-11	2.8 E-07	2.3 E-07	8.6 E-08
c) % of Tech Spec Limit	%							
3. Dissolved Noble Gases								
a) Total Release	Curies	ND	ND	ND	ND	NA	ND	ND
b) Aver Concentration Released	μCi/ml							
c) % of Tech Spec Limit	%							
4. Gross Alpha Radioactivity								
a) Total Release	Curies	NONE	1.6 E-05	3.4 E-05	2.5 E-04	3.1 E-02	4.9 E-03	3.6 E-02
b) Aver Concentration Released	μCi/ml	NONE	2.1 E-12	4.0 E-12	3.8 E-12	3.5 E-10	6.0 E-11	7.0 E-11
5. Volume of Liquid Waste to Discharge Canal	Liters	NONE	1.7 E+05	6.5 E+05	1.1 E+06	4.5 E+06	9.7 E+06	9.7 E+06
6. Volume of Dilution Water	Liters	8.5 E+09	7.6 E+09	8.5 E+09	6.5 E+10	8.8 E+10	8.2 E+10	2.6 E+11

ND = Not Determined NA = Not Applicable

TABLE 1.2-2 (Cont'd)

REPORTING OF RADIOACTIVE EFFLUENTS

Docket Nos.: 50-237, 50-249

FACILITY: DRESDEN NUCLEAR POWER STATION - Units 2/3 YEAR: 1975

Liquid Effluents (Cont'd)	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
7. Isotopes Released								
Mn- 54	Curies	None	2.6 E-03	5.3 E-03	-	1.5 E-02	9.6 E-03	3.3 E-02
Co- 60		"	1.5 E-02	4.5 E-02	5.2 E-02	6.3 E-02	3.9 E-02	2.1 E-01
Sr- 89		"	1.0 E-05	4.9 E-03	9.9 E-03	1.3 E-01	8.4 E-02	2.3 E-01
Sr- 90		"	1.0 E-05	2.0 E-04	1.0 E-03	4.1 E-03	2.6 E-03	7.8 E-03
Ag-110m		"	6.5 E-04	-	-	-	-	6.5 E-04
I -131		"	1.2 E-03	1.4 E-02	-	-	-	1.5 E-02
Cs-134		"	2.3 E-04	6.0 E-03	-	1.4 E-02	8.5 E-03	2.8 E-02
Cs-137		"	4.7 E-04	1.3 E-02	6.9 E-03	-	-	2.0 E-02

ND = Not Determined

NA = Not Applicable

TABLE 2.0-1

SOLID WASTE SHIPMENTS, JANUARY - JULY, 1975

Dockets Nos.: 50-10, 50-237, 50-249

FACILITY: DRESDEN NUCLEAR POWER STATION YEAR: 1975

A. Processed by Edison	Units	Jan.	Feb.	Mar.	Apr.	May	June	Six Month Total
1. Spend Resins, Filter Sludges, Evaporator Bottoms, etc.								
a) Quantity Shipped	cu.m.	7.7 E+01	1.1 E+02	1.8 E+02	2.3 E+02	1.4 E+02	1.9 E+02	9.1 E+02
b) Radioactivity	Curies	2.3 E+01	7.0 E+01	1.8 E+04	6.7 E+01	5.2 E+01	8.4 E+01	3.1 E+02
2. Dry Compressible Waste, Contaminated Equipment, etc.								
a) Quantity Shipped	cu.m.	2.2 E+02	6.9 E+01	1.1 E+02	1.0 E+02	1.1 E+02	1.8 E+02	7.4 E+02
b) Radioactivity	Curies	1.3 E+01	1.9 E+01	2.0 E+03	2.0 E+01	1.0 E+01	6.7 E+01	1.3 E+02
B. Processed By Contractor								
1. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.								
a) Quantity Shipped	cu.m.	NONE	3.9 E+01	5.9 E+01	8.1 E+01	2.1 E+02	5.4 E+01	4.4 E+02
b) Radioactivity	Curies	NONE	1.1 E+01	1.5 E+01	2.5 E+01	1.1 E+02	2.9 E+01	1.9 E+02
2. Dry Compressible Waste, Soil, Contaminated Equipment, etc								
a) Quantity	cu.m.	NONE	NONE	NONE	NONE	NONE	2.1 E+02	2.1 E+02
b) Radioactivity	Curies	NONE	NONE	NONE	NONE	NONE	4.1 E-02	4.1 E-02
3. Number of Shipments-								
to Sheffield Nuclear Center	Shipments	29	38	55	35	30	97	284
to Barnwell Nuclear Center	Shipments	14	18	2	8	12	10	64
Mode of transportation - Motor Freight								

ND = Not Determined NA = Not Applicable

3.0 DOSE TO MAN

3.1 GASEOUS EFFLUENT PATHWAYS

3.1.1 NOBLE GASES

3.1.1.1 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. Based on measured effluents and meteorological data, the maximum off-site external radiation exposure over a land area occurred south of the site. The dose to an individual at that location would be 12 mrem during the six-month period, without correcting for occupancy or shielding. Consideration of occupancy and shielding is likely to reduce this dose not greater than 6 mrem for the period.

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.

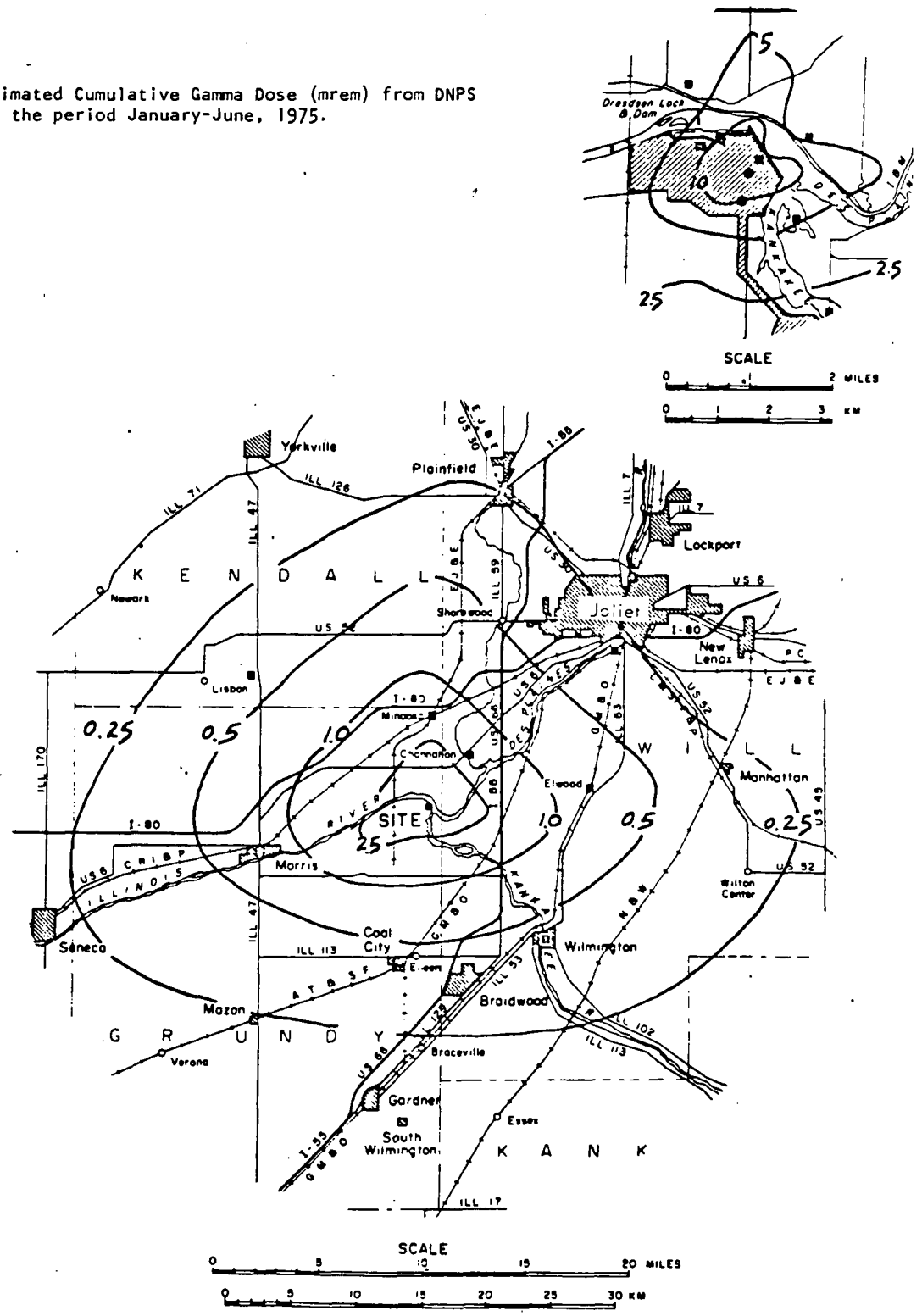
The air concentrations of radioactive noble gases at the off-site receptor locations are given in Figure 3.1-2. The maximum off-site beta air dose for the six-month period was 0.7 mrad.

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.

FIGURE 3.1-1

Estimated Cumulative Gamma Dose (mrem) from DNPS for the period January-June, 1975.

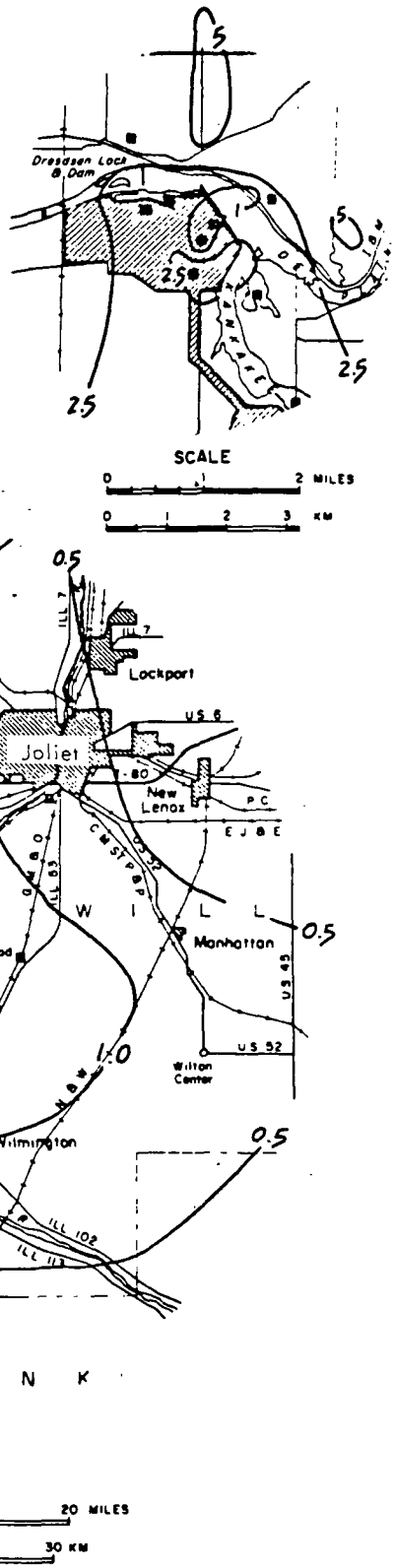


POOR ORIGINAL

FIGURE 3.1-2

Estimated Total Concentration (pCi/meter^3) of Noble Gases from DNPS for the period January-June, 1975.

Isopleth labels: Large figure - multiply by 10^3
Small 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 Figure 3.1-3. Included in these calculations is an iodine cloud depletion factor which accounts for the phenomenon of elemental iodine deposition on the ground. The maximum off-site six-month average concentration is estimated to .02pCi/m^3.

3.1.2.2 DOSE TO INFANT'S 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 0.3 mrem during the six-month reporting period (Table 3.1-1).

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 0.5 mrem during the report period. 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 hypothethical 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 Figure 3.1-4. The maximum off-site average level for the six months and the year is estimated to be 0.1 pCi/m^3 at the site boundary.

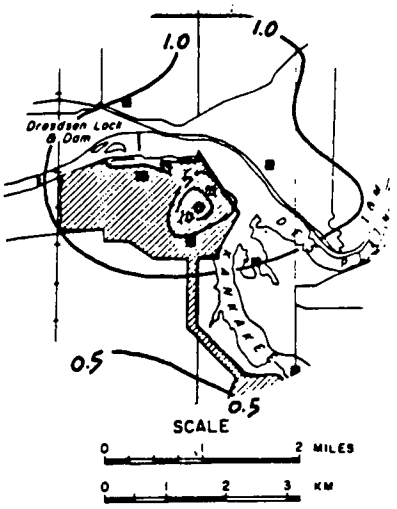
3.1.4 SUMMARY OF DOSES

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

FIGURE 3.1-3

Estimated Total Concentration (pCi/meter^3) of Iodine from DNPS for the period January-June, 1975

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



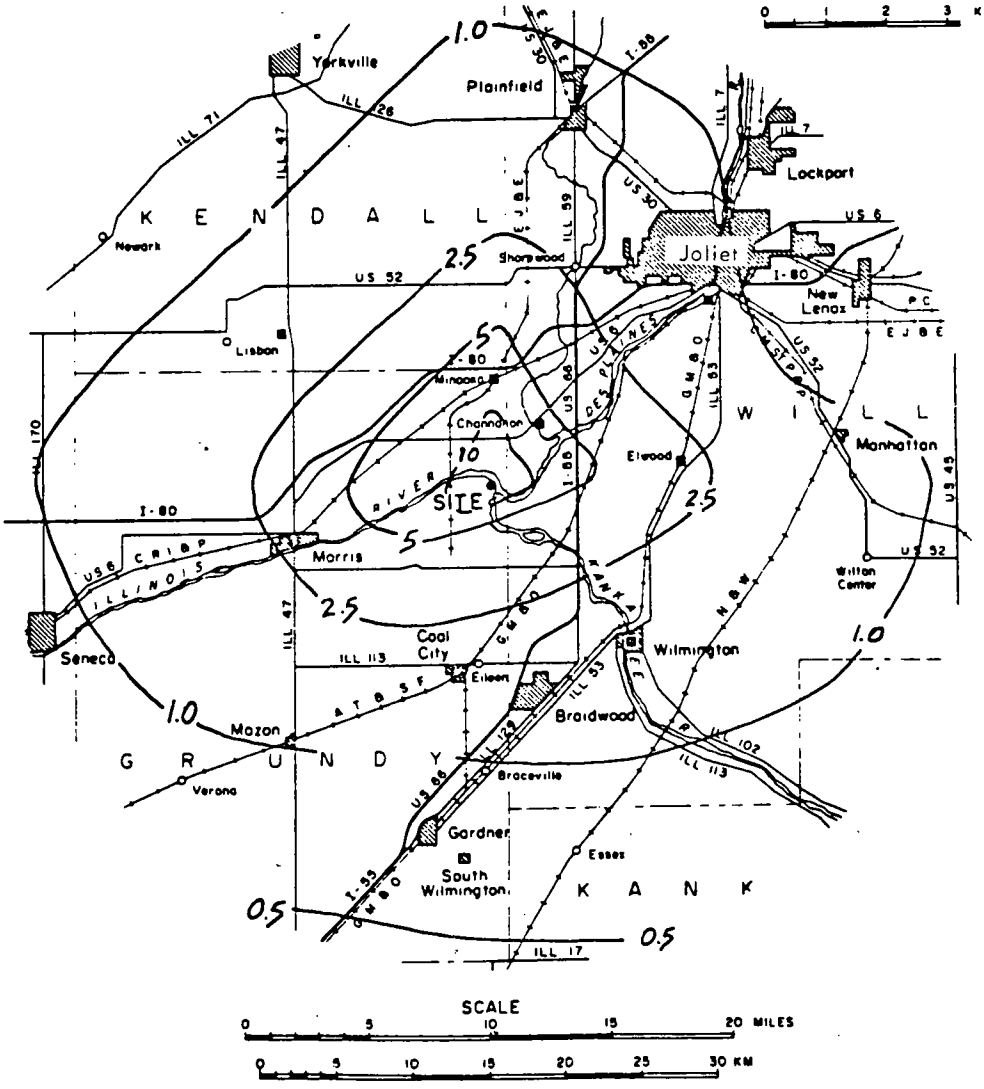
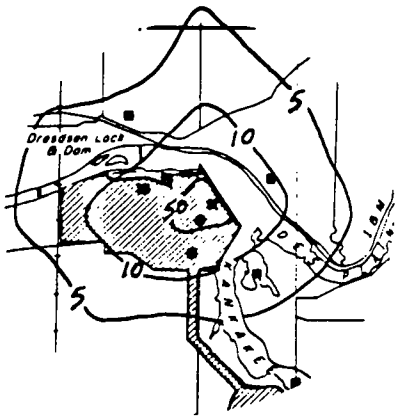


FIGURE 3.1-4

Estimated Total Concentration (pCi/meter^3) of Particulate Matter from DNPS for the period January-June, 1975

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



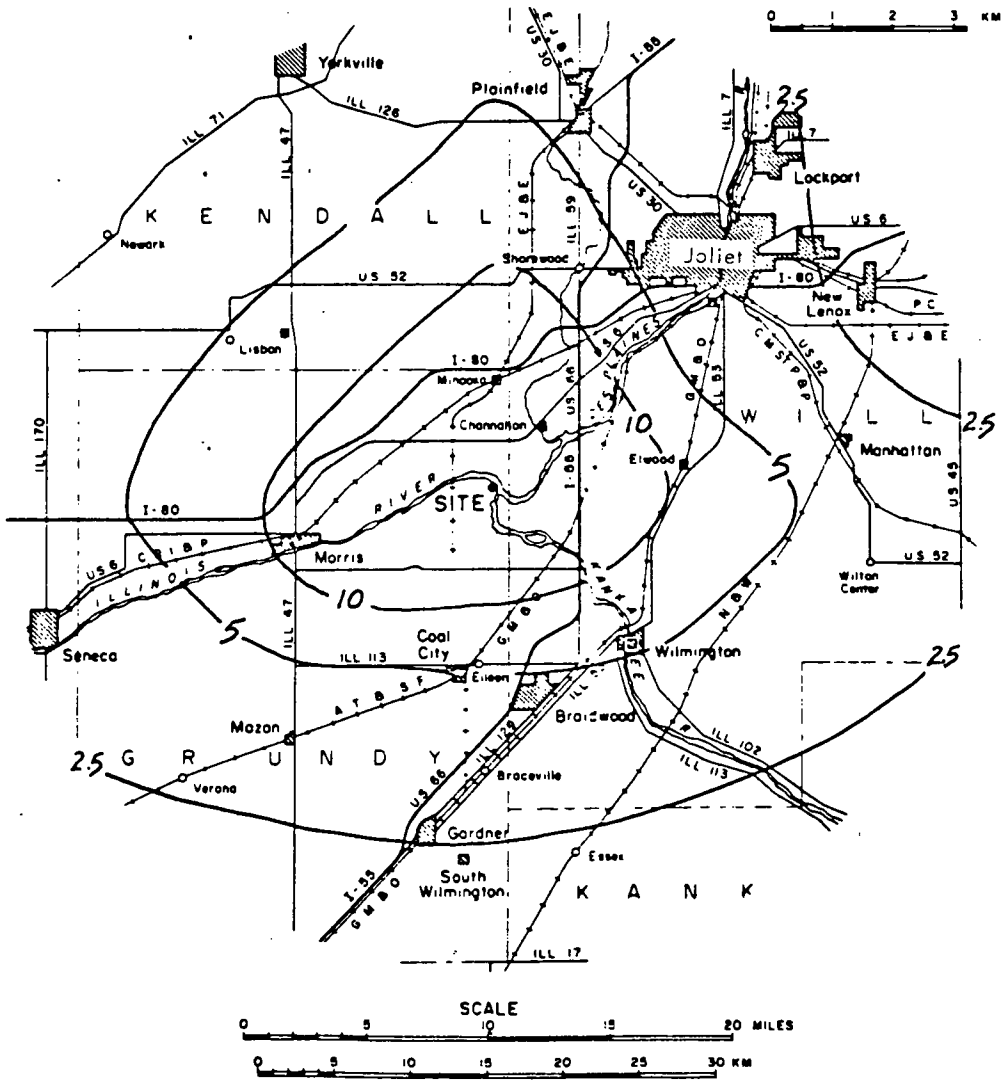


TABLE 3.1-1

DOSES RESULTING FROM AIRBORNE RELEASES
DRESDEN NUCLEAR POWER STATION
MONTH ENDED JUNE, 1975

TYPE	UNITS	MAXIMUM DOSE (1) THIS MONTH	LAST 3 MONTHS	LAST 6 MONTHS	YEAR TO DATE
WHOLE BODY	MREM	1.565E+00	5.131E+00	1.129E+01	1.129E+01
SKIN	MREM	1.485E-01	3.262E-01	7.082E-01	7.082E-01
INFANTS THYROID (2)	MREM	1.935E-01	3.004E-01	3.147E-01	3.147E-01
ADULTS THYROID (3)	MREM	3.471E-02	4.274E-02	5.456E-02	5.456E-02
POPULATION (4)	PERSON-REM	1.980E+02	4.520E+02	1.296E+03	1.296E+03(5)

(1) DOSES CALCULATED IN ACCORDANCE WITH PROPOSED A.L.A.P. REGULATORY GUIDES AA AND DD.
(2) INCLUDES INHALATION DOSE FOR EACH MONTH AND DOSE RECEIVED VIA MILK PATHWAY FROM APRIL THRU SEPTEMBER ONLY.
(3) INCLUDES INHALATION DOSE FOR EACH MONTH AND DOSE RECEIVED VIA LEAFY VEGETABLE PATHWAY DURING AUGUST, SEPTEMBER AND OCTOBER ONLY.
(4) 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.
(5) THE EQUIVALENT AVERAGE POPULATION DOSE IS 2.111E-04 REM.

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 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. Calculated doses are given in Tables 3.2-2 a, 3.2-2 b.

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.

5.0 ENVIRONMENTAL MONITORING

Table 5.0-1 provides a summary of the radiological environmental monitoring program as required in the Technical Speiifications. 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.

The level of radioactivity in environmental media sampled remained low and any radioactivity which may have been present due to plant operations was in general indistinguishable from that due to fallout and/or naturally occurring nuclides.

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

*JF Fletcher and WL Dotson (compilers),"HERMES-A digital Computer Code for Estimating Regional 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 Octo is 47 hr/m.

TABLE 3.2-2 a

DRESDEN-1 NUCLEAR POWER STATION
DOSES RESULTING FROM EXPOSURE
TO RADIOACTIVITY DISCHARGED IN LIQUID WASTE
JUNE 1975 AND JANUARY TO JUNE 1975

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	.002	.003	0.000	.001	.009	.008	0.000	0.000	.000
LAST 3 MONTHS	.005	.006	0.000	.004	.019	.016	0.000	0.000	.000
LAST 6 MONTHS	.013	.007	.000	.011	.037	.032	0.000	0.000	.000
SINCE JANUARY	.013	.007	.000	.011	.037	.032	0.000	0.000	.000

ORGAN	TOTAL ORGAN DOSE SINCE JANUARY		
	TOTAL DOSE	MAXIMUM ALLOWABLE	PERCENT OF MAXIMUM
WHOLE BODY	.046	500	.009
GI-LLI	.007	1500	.000
THYROID	.000	1500	.000
BONE	.011	500	.002
SKIN	.037	3000	.001

TABLE 3.2-2 b

DRESDEN-2/3 NUCLEAR POWER STATION
DOSES RESULTING FROM EXPOSURE
TO RADIOACTIVITY DISCHARGED IN LIQUID WASTE
JUNE 1975 AND JANUARY TO JUNE 1975

DOSE BY PATHWAY (MREM)

PERIOD	INGESTION				SHORELINE		SWIMMING		BOATING
	WHOLE BODY	GI-LLI	THYROID	BONE	SKIN	WHOLE BODY	SKIN	WHOLE BODY	WHOLE BODY
THIS MONTH	.001	.000	0.000	.001	.002	.001	0.000	0.000	.000
LAST 3 MONTHS	.002	.001	0.000	.004	.007	.006	0.000	0.000	.000
LAST 6 MONTHS	.010	.002	.002	.011	.033	.028	0.000	0.000	.000
SINCE JANUARY	.010	.002	.002	.011	.033	.028	0.000	0.000	.000

TOTAL ORGAN DOSE SINCE JANUARY

ORGAN	TOTAL DOSE	MAXIMUM ALLOWABLE	PERCENT OF MAXIMUM
WHOLE BODY	.039	500	.008
GI-LLI	.002	1500	.000
THYROID	.002	1500	.000
BONE	.011	500	.002
SKIN	.033	3000	.001

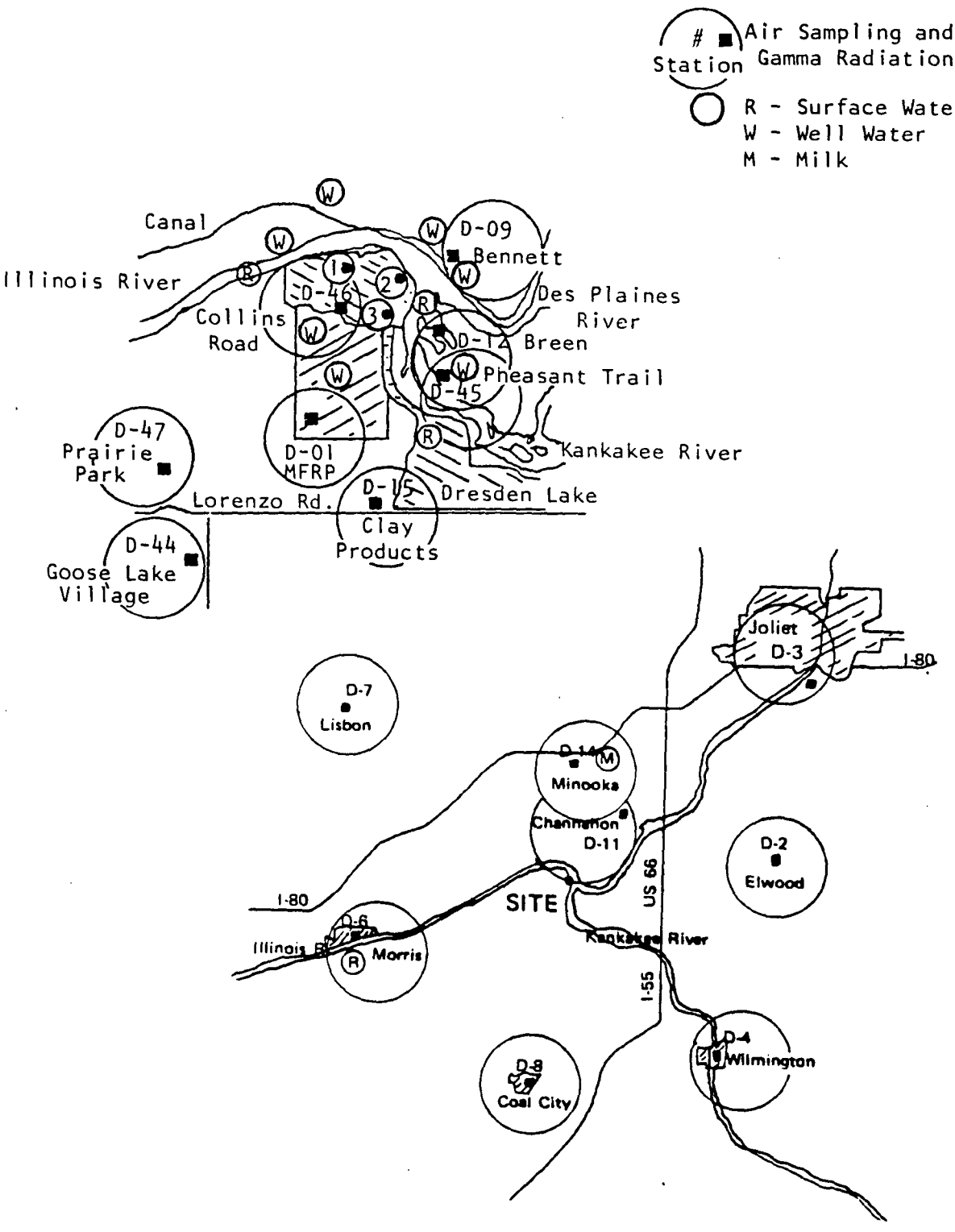


FIGURE 5.0-1 Location of Dresden/MFRP Environmental Monitoring Stations

TABLE 5.0-1

SUMMARY OF RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM *

JANUARY THROUGH JUNE 1975

Medium	Number of Locations	Number of Samples	No. of Locations Above Background	Radiation Attributable to Plant Operation
Direct Radiation	35	838	0	0
Airborne Particulate	17	432	0	0
Airborne I-131	17	236	0	0
Milk	3	96	0	0
Grass	4	11	0	0
Cattle Feed	3	30	0	0
Precipitation	4	24	0	0
Soil	4	8	0	0
Water	22	199	1	See Discussion
Fish	1	2	0	0
Sediment	3	6	0	0
Other Aquatic Biota	6	9	0	0

* Exclusive of special collections. Se Section

TABLE 5.0-2

REPORTING OF RADIOACTIVITY IN THE ENVIRONS

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

Facility: Dresden

Reporting Period: First Quarter 1975

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	1.0	7.7	<2	<1	280	<4	
I Discharge Canal-2/3	1.1	8.1	<2	<1	370	<4	
B Inlet Canal-1	1.0	6.8	<2	<1	230	<4	
1b. Surface							
I Illinois River at EJ&E RR Bridge	1.0	8.3	<2	<1	250	<4	
I Illinois River at Morris	-	9.9	-	-	320	-	
I Dresden Lock & Dam	-	11.0	<2	<1	-	-	
I Dresden Lake (Pond)	-	6.7	-	-	350	-	
1c. Well							
Indicator		Gross β (Q/G)					
Dresden Lock & Dam		16.7			-		
Dresden Well #1		14.0			<125		
Dresden Well #2		20.0			<120		
Thorsen Farm		6.0			285		
Anderson Farm		5.0			-		
Background							
Bennitt Farm		15.0			-		
Hansel		14.0			-		
Breen		9.0			-		
Olson		19.0			-		
MFRP Well		<4			<120		
Drinking Fountain		28.0			-		
1d. Precipitation							
		Gross β (M/C)					
I On-Site #2		86.0			307		
B Davidson Farm		45.3			220		
B Mather Farm		46.7			307		
B Brandon Lock & Dam		96.0			237		
2.0	Particulate						
Indicator	Gross α (M/C)	Gross β (W/C)			GeLi (M/C')	I-131 (B/C)	10^{-14} µCi/cc
Bennitt Farm	.17	11.5			<5	<3	
Clay Products	.23	12.1			<5	<3	
On-Site #1	-	12.0			<5	<3	
On-Site #2	-	12.1			<5	<3	
On-Site #3	.27	12.2			<5	<3	
Pheasant Trail	.30	11.9			<5	<3	
Collins Road	.13	10.1			<5	<3	
Prairie Park	-	10.9			<5	<3	
Background							
Elwood	-	11.8			<5	<3	
Joliet	.13	12.4			<5	<3	
Wilmington	-	11.2			<5	<3	
Morris	.17	12.3			<5	<3	
Lisbon	-	11.3			<5	<3	
Coal City	.20	12.2			<5	<3	
Channahon	-	12.0			<5	<3	
Minooka	.17	11.6			<5	<3	
Goose Lake Village	.17	12.0			<5	<3	

3.0 Gamma Background	ION CHAMBERS		TLD	mR/Week mR/Quarter
Indicator	Gamma (W/I)	Gamma (Q/I)	Gamma (Q/I)	
Bennitt Farm	2.0	26.4	17.6	
Clay Products	1.9	24.6	16.4	
On-Site #1	1.9	24.4	18.2	
On-Site #2 Unshielded	3.0	39.5	38.7	
On-Site #2 Shielded	2.3	29.4		
On-Site #3	2.0	26.3	20.9	
Pheasant Trail	2.0	26.0	16.3	
Prairie Park	2.0	25.7	16.6	
Collins Road	2.0	26.0	18.6	
Background				
Elwood	1.9	24.1	14.0	
Joliet	2.0	25.7	14.2	
Wilmington	1.6	21.2	15.2	
Morris	1.9	24.2	15.2	
Lisbon	1.7	21.7	15.0	
Coal City	1.8	23.9	13.4	
Channahon	1.9	25.2	15.5	
Minooka	1.9	24.3	16.5	
Goose Lake Village	1.9	25.2	16.4	

(1) Frequency: W-Weekly, M-Monthly, Q-Quarterly, T-Thrice Annually, S-Semi-Annual, A-Annual
Type: G-Grab, C-Continous, 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 RADIOACITIVY IN THE ENVIRONS

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

Facility: Dresden

Reporting Period: First Quarter 1975

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')		I-131 (W/G)	10^{-9} µCi/ml
I Davidson Farm		<5	2.3	<5		<4	
I Phillips Farm		<5	7.3	<5		<4	
B Mather Farm		<5	3.7	<5		<4	
5.0 Sediment	Gross β (A/S)	Sr-89 (M/C')	Sr-90 (M/C')				10^{-9} µCi/kg
I Dresden Lock & Dam	15.0	<1	<1				
B Kankakee River	32.0	<1	<1				
B Des Plaines River	6.5	<1	<1				
6.0 Periphyton	Gross β (T/G)						
I Dresden Lock & Dam	56.0						
B Kankakee River	9.0						
B Des Plaines River	16.0						
7.0 Fish							
I Dresden Lock & Dam		NOT SCHEDULED THIS PERIOD					
8.0 Grass							
I Phillips Farm							
I Davidson Farm		NOT SCHEDULED THIS PERIOD					
B Mather Farm							
9.0 Cattle Feed & Hay	Gross β (M/S)	Sr-89 (M/S)	Sr-90 (M/S)		GeLi (A/G)	I-131 (A/G)	10^{-3} µCi/kg
I Phillips Farm	11.0	<2	<1		<1	<1	
I Davidson Farm	14.3	<2	<1		<1	<1	
B Mather Farm	8.0	<2	<1		<1	<1	
10.0 Vegetables							
I Truck Farm 1		NOT SCHEDULED THIS PERIOD					
I Truck Farm 2							
I Truck Farm 3							
I Truck Farm 4							
11.0 Soil	Gross β (S/G)	Sr-89 (S/G)	Sr-90 (S/G)				
I Davidson Farm	22.0	<2	<1				
I Thorsen Farm	12.0	<2	<1				
B Rousonellis Truck Farm	13.0	<2	<1				
12.0 Aquatic Plants							
I Discharge Canal-1							
I Discharge Canal-2/3		NOT SCHEDULED THIS PERIOD					
B Inlet Canal							

(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 occ within a series, "<" data are averaged as if they were measured quantities.

TABLE 5.0-3

REPORTING OF RADIOACTIVITY IN THE ENVIRONS

Facility: Dresden | Docket No. 50-10, 50-237, 50-249 | Reporting Period: Second Quarter, 1975

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							
1a. Station Cooling 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
I Discharge Canal- 1	1.3	8.8	<2	<1	170	<4	
I Discharge Canal-2/3	1.1	8.6	<2	<1	390	<4	
B Inlet Canal- 1	1.2	131.0	<2	<1	130	<4	
1b. Surface							
I Illinois River At EJ&E RR Bridge	1.0	8.5	<2	<1	190	<4	
I Illinois River at Morris	-	8.3	-	-	400	-	
I Dresden Lock & Dam	-	<3	<5	<1	-	-	
I Dresden Lake (Pond)	-	6.1	-	-	350	-	
B Goose Lake Corp. of Eng.	-	5.0	-	-	420	-	
1c. Well		Gross β (Q/C)					
Indicator							
Dresden Lock & Dam		20			-		
Dresden Well #1		28			<130		
Dresden Well #2		33			<120		
Anderson Farm		18			-		
Background							
Bennit Farm		24			-		
Hansel		6			-		
Breen		10			-		
Olson Farm		12			-		
1d. Precipitation		Gross β (M/I)			H-3 (M/I)		
I On-Site #2		37.7			350		
B Davidson Farm		19.0			377		
B Mather Farm		18.0			297		
B Brandon Lock & Dam		44.3			243		
2.0 Air							
	Particulate					I-131(B/C)	10^{-14} μCi/cc
	Gross α (M/C)	Gross β (W/C)			GeLi (M/C')		
Indicator							
Bennitt Farm	.13	12.3			<1	<3	
Clay Products	.20	13.6			<1	<3	
On-Site #1	-	13.3			<1	<3	
On-Site #2	-	14.8			<1	<3	
On-Site #3	.23	14.7			<1	<3	
Pheasant Trail (Bren)	.13	13.3			<1	<3	
Collins Road	.20	13.5			<1	<3	
Prairie Park	-	13.3			<1	<3	
Background							
Elwood	-	12.5			<1	<3	
Joliet	.17	12.8			<1	<3	
Wilmington	-	12.9			<1	<3	
Morris	.13	12.5			<1	<3	
Lisbon	-	13.1			<1	<3	
Coal City	.15	9.9			<1	<3	
Channahon	-	12.5			<1	<3	
Minooka	.20	13.4			<1	<3	
Goose Lake Village	.13	12.6			<1	<3	
3.0 Gamma Background	Ion Chambers		TLD				mR/Week mR/Quarter
	Gamma (W/I)	Gamma (Q/I)	Gamma (Q/I)				
Indicator							
Bennitt Farm	1.9	24.5	12.7				
Clay Products	1.7	21.5	12.1				
On-Site #1	1.9	24.6	14.3				
On-Site #2 Unshielded	4.5	58.1	41.9				
On-Site #2	2.8	36.3	-				
On-Site #3	2.1	27.0	15.1				
Pheasant Trail	1.9	24.4	12.1				
Prairie Park	1.8	23.4	11.2				
Collins Road	2.0	25.7	13.7				
Background							
Elwood	1.8	23.4	10.3				
Joliet	1.7	22.6	10.9				
Wilmington	1.7	22.4	10.9				
Morris	1.7	21.6	10.8				
Lisbon	1.5	19.5	11.1				
Coal City	1.7	21.8	9.9				
Channahon	1.7	22.5	11.6				
Minooka	1.9	24.0	11.6				
Goose Lake Village	1.7	22.5	10.1				

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 meaurement. 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: Second Quarter, 1975

	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')		I-131 (W/G)	10^{-9} µCi/m
	I Davidson Farm		<5	4.7	<5		<0.5	
	I Phillips Farm		<5	6.0	<5		<0.5	
	B Mather Farm		<5	4.0	<5		<0.5	
5.0	Sediment	Gross β (Q/G)	Sr-89 (Q/G)	Sr-90 (Q/G)				10^{-3} µCi/kg
	I Dresden Lock & Dam	12	<1	<1				
	B Kankakee River	5	<1	<1				
	B Des Plaines River	12	<1	<1				
6.0	Periphyton	Gross β (Q/G)						10^{-6} µCi/g
	I Dresden Lock & Dam	14						
	B Kankakee River	13						
	B Des Plaines River	18						
7.0	Fish	Gross β (S/G)	Sr-89 (S/G)	Sr-90 (S/G)		GeLi (S/G)		10^{-3} µCi/kg
	I Dresden Lock & Dam	12.0	<.1	<.1		<.1		
8.0	Grass	Gross β (M/G)	Sr-89 (M/G)	Sr-90 (M/G)	Cs-137 (M/G)	GeLi (A/G)	I-131 (A/G)	10^{-3} µCi/kg
	I Davidson Farm	46	<2	<1	<1	<1	<.1	
	B Mather Farm	40	<2	<1	<1	<1	<.1	
	I Phillips Farm	36	<2	<1	<1	<1	<.1	
9.0	Cattle Feed & Hay	Gross β (M/G)	Sr-89 (M/G)	Sr-90 (M/G)	Cs-137 (M/G)	GeLi (A/G)	I-131 (A/G)	/kg
	I Phillips Farm	11	<2	<1	<1	<1	<1	
	I Davidson Farm	17	<2	<1	<1	<1	<.1	
	B Mather Farm	9	<2	<1	<1	<1	<1	
10.0	Vegetables	Gross β (T/G)	Sr-89 (T/G)	Sr-90 (T/G)	Cs-137 (T/G)	GeLi (A/G)		10^{-3} µCi/kg
	I Truck Farm 1							
	I Truck Farm 2			NOT SCHEDULED THIS PERIOD				
	I Truck Farm 3							
11.0	Soil	Gross β (Q/G)	Sr-89 (Q/G)	Sr-90 (Q/G)				10^{-3} µCi/kg
	I Davidson Farm	<1	<2	<1				
	I Thorsen Farm	26	<2	<1				
	I Rousonellis Farm	6	<2	<1				
12.0	Aquatic Plants	Gross β (S/G)	Sr-89 (S/G)	Sr-90 (S/G)		GeLi (A/G)		10^{-3} µCi/kg
	I Discharge Canal-1	28	<2	<1		<1		
	I Discharge Canal-2/3	30	<2	<1		<1		
	B Inlet Canal	17	<2	<1		<1		

(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.

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 is 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 TLD badges are provided with 300 mg/cm^2 shielding (aluminum and plastic) to eliminate response to low energy beta or secondary electrons scattered from air and nearby metal surfaces. The ion chambers are not shielded and some of the ion chambers 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 5.1-10 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.

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 5.2-7 (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 and beta radioactivity associated with airborne particulate matter (after decay of natural radon daughters) remained below 0.01 and 0.26 pCi/m^3, respectively. 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 analysis of monthly composites of air particulate filters revealed only the presence of activity attributed to worldwide fallout. (Table 5.2-10 in Appendix I).

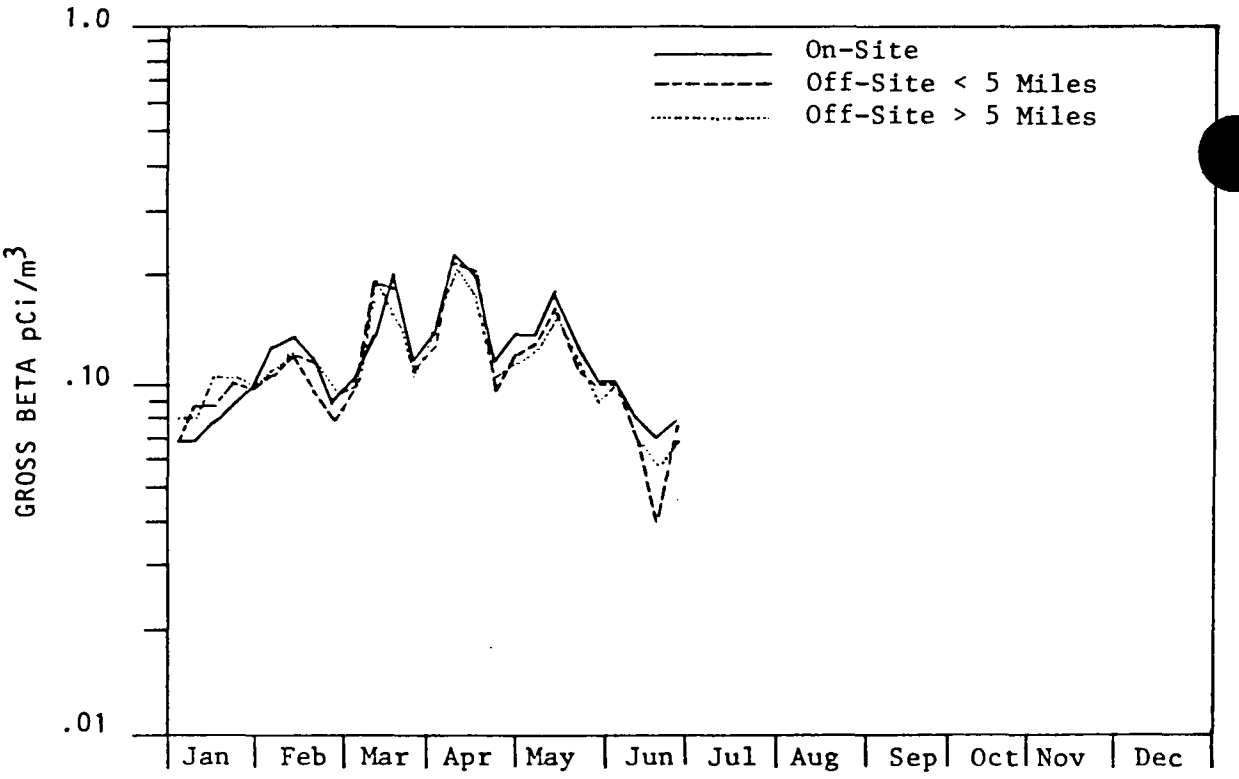


FIGURE 5.2-1. DRESDEN. GROSS BETA IN WEEKLY AIR PARTICULATES

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&E Railroad Bridge. A bi-weekly 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 often requires 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 5.3-5 do not indicate any measurable radioactivity attributable to plant operation.

The results of analyses of aquatic biota and bottom sediments are given in Tables 5.3-6 to 5.3-9. Only the May sample of aquatic plants contained a trace of activity (Co-60) possibly attributable to plant operations.

5.4 MILK, GRASS AND CATTLE FEED

Milk samples were collected weekly from the Davidson Farm located five miles northeast of Dresden, the Phillips Farm located about ten miles south of the station and the Mather Farm (Background station) located more than ten miles N.E. of Dresden. I-131 was determined for each sample. Other 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. The only radionuclides present in measurable amounts were Sr-90 (Table 5.4-2) from worldwide fallout and natural K-40. The concentrations of Sr-90 were within expected ranges and are not attributable to plant operation.

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, cattle feed samples were collected instead of pasture grass. These grass and cattle feed 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. Trace amount of other fission products such as Nb-95 and Ce-144 were detected in some grass samples and are attributed to worldwide fallout.

5.5 TERRESTIAL 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, summarized in Table 5.5-1, (Appendix I), indicate a measurable increase in radioactivity in rain due to worldwide fallout as discussed in 5.0. 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 are not available during the first six months of the year.

5.7 GROUND WATER

Well water samples, collected monthly from the on-site drinking fountain and quarterly from four 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

On January 12 and 16 to 29, 1975; February 27 to March 5, 1975; March 16 and 18, 1975; May 13 to 17, 1975; June 1 to 4, 1975, airborne effluents exceeded 33%, but not 100% of the limits in Technical Specification section 3.8.A.2. Special collections of grass and soil were made on February 1, 1975; May 28, 1975; and June 7, 1975. Samples of grass and soil were missed for the May 13 to 17, 1975 period. Gross beta analyses of soil and grass samples and gamma isotopic analyses of the grass samples did not reveal the presence of radioactivity attributable to station operations. (Tables 5.8-1 to 5.8-6) 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.

On May 10, 1975, the erroneous operation of a resin transfer pump located in the Unit 1 radwaste facility led to an unplanned transfer of 19,500 gall of water and small quantities of spent resins and filter sludge from a stor tank in the radwaste facility to the grade level floor of a nearby temporary waste solidification building. Most of the liquid and some of the solids then flowed to the ground outside the building (Zones 1 and 2). Analysis of a water sample taken from the storage tank on May 12 showed a gross beta concentration of less than 10^4pCi/l, thus indicating that 0.6 Ci flowed onto the ground. This analysis also found that the radioactivity composition was Co-60 (~50%), Cs-137 (~28%), Cs-134 (~13%), plus Co-58 and Mn-54 (~4% each).

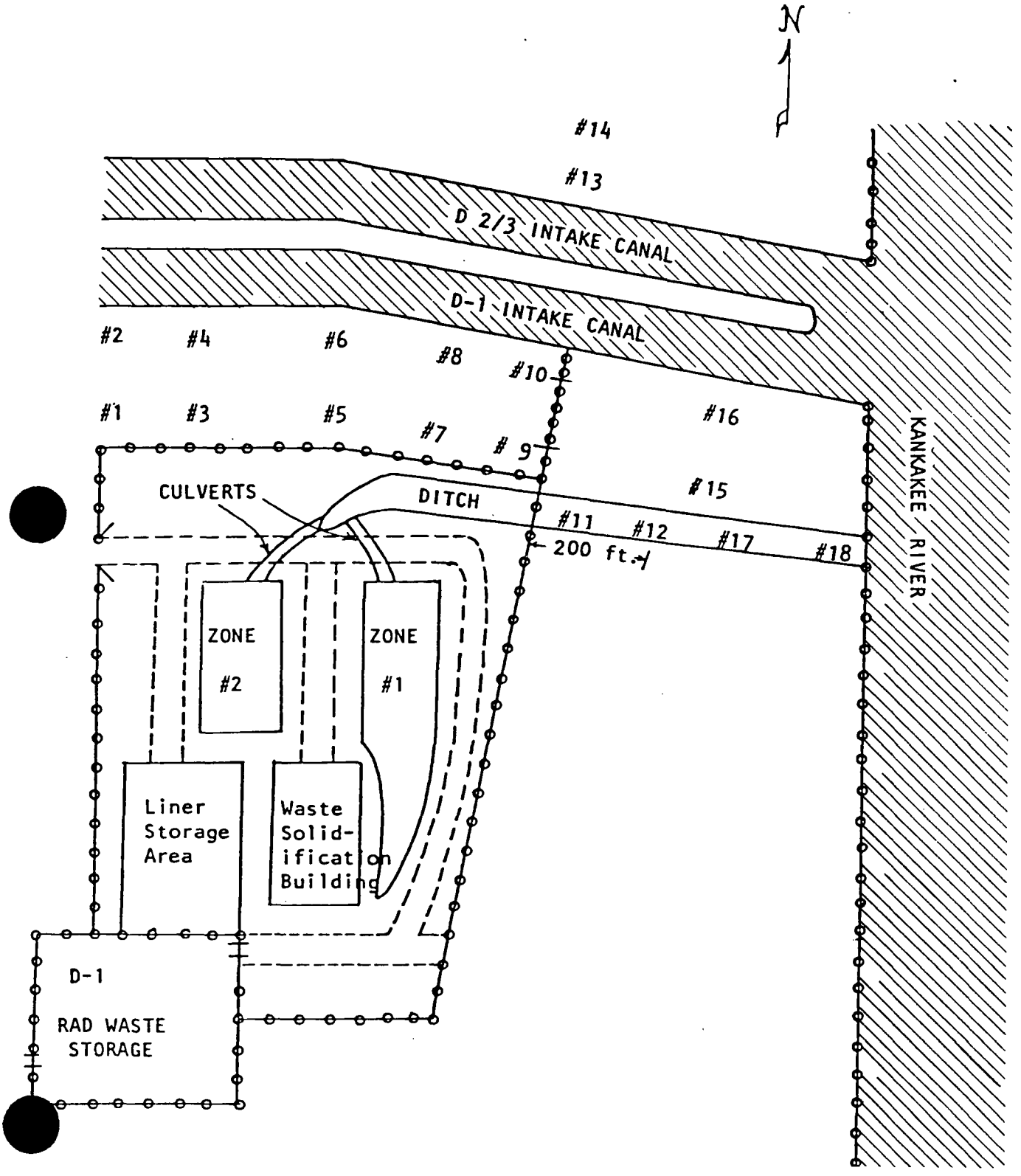
A special environmental monitoring program consisting of soil and water sampling was performed following the spill to determine the environmental impact, if any, of the spill.

Soil sampling within the spill area was performed to determine the quantity of soil to be removed for burial at the Sheffield Radwaste burial ground. As of July 30, 1975 approximately 26,000 ft^3 of soil have been so removed, of an estimated total volume of 85,000 ft^3 that might have to be removed.

Soil sampling outside the spill area was performed to assure that the contamination was contained on-site. Sampling sites are shown in Figure 5.8-1. This sampling (Tables 5.8-7 and 5.8-8) showed that low-level quantities of radioactivity had spread beyond the spill area via a ditch that lies adjacent to the Unit 1 intake canal. Trace concentrations of Cs-137 and Co-60 were also found along the bank of the intake canal but this activity is not attributable to the spill because of the absence of Co-58, Cs-134, and Mn-54.

FIGURE 5.8-1 ON-SITE CONTAMINATED SPILL ZONES AND

SPECIAL SOIL SAMPLING POSITIONS MAY 10, 1975



5.8 SPECIAL COLLECTIONS (Cont'd)

Water sampling in the Unit 1 intake canal, Unit 1 and 2/3 discharge canals, and at the EJ&E RR bridge which crosses the Illinois River downstream of the Station during the week following the spill did not show the presence of any radioactivity attributable to the occurrence. (Table 5.8-9) The May 24-31 Unit 1 intake canal composite sample showed gross beta concentrations of Cs-134, Cs-137, Co-60, Mn-54, which measured 2×10^3 pCi/l in the filterable solids. The Unit 1 discharge did not show the presence of this radioactivity. Similar isotopics at lower concentrations were measured during the weeks 5/31 to 6/7, 6/7 to 6/14, 6/21 to 6/26 and in subsequent samples until July 24. The activity was not found during the week of 6/14 to 6/21. During all of these weeks no radioactivity attributable to the occurrence was found in the discharge canals. (Table 5.8-10)

In an effort to determine the source of this activity daily grab samples from the intake canal were taken from 6/10 to 6/20 but no artificial radioactivity was found. This special sampling program was then terminated because of the negative finding in the 6/14 to 6/21 composite sample.

When the radioactivity reappeared in the 6/21 to 6/26 composite sample it was concluded that either (a) the sampling system or associated laboratory equipment was slightly contaiminated or (b) leaching of activity from the spill area was occurring. This latter hypothesis could not be supported because no activity from the spill was found in the soil collected along the intake bank or in the discharge water. A check of the intake sampling system and associated laboratory equipment was completed in late July. The origin of the contaminant was found to be a contaminated laboratory graduated cylinder which was used to prepare the inlet composite sample.

On June 9 and 10, 1975, the Walter H. Flood & Co., Inc. made three 35' borings approximately 6' from and on the east side of the below-ground T-112 and T-113 vaults in the Unit 1 radwaste facility. These borings (#1 to the north, #2 in the middle, #3 to the south) were made to determine whether or not there was leakage of radioactivity from the vaults to the soil. A surface sample and fourteen other soil samples were taken from each boring at intervals of 2 to 2½ feet.

Gamma isotopic analyses of the samples showed that Cs-134, Cs-137 and Co-60 were found in all surface and several subsurface samples above a minimum detectable level of 1 pCi/g; that Mn-54 was found only in the surface samples. (Table 5.8-11) Most of this activity was found on or near the surface thus indicating that its origin was minor spillage during previous operation of the radwaste facility. The concentrations were greatest near the surface of bore #3. That activity found at 21' to 24' in borehole 2 is attributed to seepage from the surface down along the outside wall of the vault. That activity in hole 1 is thought to be due to groundwater movement from hole 2 toward hole 1.

5.8 SPECIAL COLLECTIONS (Cont'd)

Seepage of surface radioactivity rather than vault leakage is believed the source of the activity at 21' in hole 2 because:

1) The Cs137/134 ratio in soil is greater than 2 thus differing significantly from that in the vault where the ratio is 2.

2) Co-58 and Mn-54 are absent in soil though they are present in the vault water.

3) The concentrations at 21' would be expected to be significantly greater were there vault leakage.

4) Previous spills within the radwaste facility have caused water to flow off the concrete pad and then down the foundation walls on which support the radwaste buildings.

5) The ratio of surface Cs-137 activity to that at 21' is the same as that for Cs-134 thus indicating that the origin of the surface activity is probably the same as that of the subsurface activity.

6) The hydraulic pressure of ground water would cause water to leak into and not out of the vaults.

The data do show that there is no radiation hazard to the health and safety of the public from radioactivity contained in the vaults.

6.0 ANALYTICAL PROCEDURES

A summary of the procedures used for analysing radioactivity in environmental samples is given in Appendix III.

7.0 OCCUPATIONAL PERSONNEL RADIATION EXPOSURES

Occupational personnel radiation exposure data for the January-June period are given in Appendix IV.

APPENDIX I

TABLE 5.2-1

GAMMA RADIATION

(Measured using Thermoluminescent Dosimeters)

Location		1st Quarter 1975 mR/Week	2nd Quarter 1975 mR/Week	Six Month Average
On-Site Indicator Stations				
D-16 On-Site #1	A	1.40 ± .15	1.10 ± .12	
D-17 On-Site #2	B	2.98 ± .32	3.22 ± .51	
D-18 On-Site #3	C	1.61 ± .15	1.16 ± .18	
D-46 Collins Road	CR	1.43 ± .09	1.05 ± .12	
	Average	1.85 ± .76	1.63 ±1.06	1.74 ± .16
Off-Site Indicator Stations				
D-09 Bennitt Farm	BE	1.32 ± .11	0.98 ± .15	
D-15 Clay Products	J21	1.26 ± .10	0.93 ± .11	
D-45 Pheasant Trail	PT	1.25 ± .05	0.94 ± .13	
D-47 Prairie Park	PP	1.28 ± .13	0.86 ± .16	
	Average	1.28 ± .03	0.93 ± .06	1.11 ± .25
Background Stations				
D-02 Elwood	J15	1.08 ± .17	0.79 ± .15	
D-03 Joliet Brandon Road	J48	1.09 ± .10	0.84 ± .12	
D-04 Wilmington	464	1.17 ± .14	0.84 ± .09	
D-06 Morris	J16	1.17 ± .14	0.83 ± .17	
D-07 Lisbon	J24	1.15 ± .13	0.85 ± .09	
D-08 Coal City	J68	1.03 ± .13	0.76 ± .13	
D-11 Channahon	CH	1.19 ± .14	0.89 ± .07	
D-14 Minooka	J27	1.27 ± .13	0.89 ± .07	
D-44 Goose Lake Village	GLV	1.26 ± .09	0.77 ± .26	
	Average	1.24 ± .22	0.83 ± .05	1.04 ± .29

TABLE 5.1-2

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
01-04-75	2458	2.1	2557	2.1	2.1	2728	1.8	2734	1.8	1.8
01-11-75	"	2.0	"	2.0	2.0	"	1.8	"	1.9	1.8
01-18-75	"	1.9	"	2.0	1.9	"	1.8	"	1.8	1.8
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	3.8	"	4.1	1.9	"	3.5	"	3.6	1.8
02-08-75	"	1.6	"	1.6	1.6	"	1.6	"	1.6	1.6
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	4.0	"	4.0	2.0	"	(a)	"	(a)	-
03-01-75	"	2.1	"	2.1	2.1	"	6.0	"	6.5	2.0
03-09-75	"	2.5	"	2.5	2.5	"	2.5	"	2.5	2.5
03-16-75	"	2.5	"	2.5	2.5	"	2.0	"	2.0	2.0
03-22-75	"	1.7	"	1.8	2.0	"	1.7	"	1.8	2.0
03-29-75	"	2.1	"	1.7	1.7	"	1.6	"	1.6	1.6
04-03-75	"	1.6	"	1.7	1.6	"	1.7	"	1.4	1.4
04-12-75	"	1.5	"	1.4	1.4	"	1.5	"	1.5	1.5
04-19-75	"	2.0	"	2.0	2.0	"	1.9	"	2.0	1.9
04-26-75	"	1.7	"	1.7	1.7	"	1.5	"	1.5	1.5
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	3.5	"	3.7	1.8	"	3.0	"	3.0	1.5
05-16-75	"	1.5	"	1.5	1.8	"	1.6	"	1.5	1.8
05-24-75	"	2.0	"	2.1	1.8	"	2.0	"	2.2	1.8
05-31-75	"	2.0	"	2.0	2.0	"	2.0	"	2.0	2.0
06-07-75	"	1.6	"	2.1	1.6	"	1.6	"	1.6	1.6
06-14-75	"	2.4	"	2.4	2.4	"	1.5	"	1.5	1.5
06-21-75	"	2.0	"	2.0	2.0	"	1.8	"	1.8	1.8
06-28-75	"	2.5	"	2.5	2.5	"	1.5	"	1.5	1.5

(a) No reading due to weather conditions.

TABLE 5.1-3

IONIZATION CHAMBER READINGS
Indicator Stations

Week Ending	D-16 Serial Number	ON-SITE STATION #1 A mR	Serial Number	mR	mR/Week	D-18 Serial Number	ON-SITE STATION #3 C mR	Serial Number	mR	mR/Week
01-04-75	2613	2.0	2530	2.5	2.0	2472	1.8	2436	1.8	1.8
01-11-75	"	2.0	"	2.0	2.0	"	2.0	"	2.1	2.0
01-18-75	"	1.8	"	1.8	1.8	"	1.8	"	1.8	1.8
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	4.0	"	4.0	2.0	"	3.6	"	3.6	1.8
02-08-75	"	1.6	"	1.8	1.6	"	2.0	"	2.1	2.0
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
03-01-75	"	5.0	"	5.1	1.7	"	7.0	"	7.2	2.3
03-09-75	"	1.7	"	1.8	1.7	"	2.5	"	2.5	2.5
03-16-75	"	2.0	"	2.0	2.0	"	2.2	"	2.2	2.2
03-22-75	"	2.0	"	2.0	2.3	"	1.8	"	1.8	2.1
03-29-75	"	1.7	"	1.7	1.7	"	1.9	"	1.7	1.7
04-05-75	"	1.5	"	1.6	1.5	"	2.0	"	2.0	2.0
04-12-75	"	1.7	"	1.5	1.5	"	2.4	"	2.2	2.2
04-19-75	"	2.0	"	2.0	2.0	"	2.0	"	2.0	2.0
04-26-75	"	2.5	"	2.5	2.5	"	2.2	"	2.2	2.2
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	4.0	"	4.0	2.0	"	4.1	"	4.1	2.0
05-16-75	"	1.7	"	1.7	2.0	"	2.1	"	2.5	2.5
05-24-75	"	2.5	"	2.5	2.2	"	2.5	"	2.3	2.0
05-31-75	"	2.0	"	1.8	1.8	"	2.2	"	2.0	2.0
06-07-75	"	1.9	"	1.7	1.7	"	1.9	"	2.0	1.9
06-14-75	"	2.2	"	2.2	2.2	"	2.1	"	2.1	2.1
06-21-75	"	1.5	"	1.5	1.5	"	2.0	"	2.0	2.0
06-28-75	"	1.8	"	1.8	1.8	"	2.0	"	2.0	2.0

(a) No reading due to weather conditions.

TABLE 5.1-4

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
01-04-75	2628	2.0	2553	2.0	2.0	2535	2.5	2479	2.5	2.5
01-11-75	"	2.2	"	2.2	2.2	"	2.5	"	2.5	2.5
01-18-75	"	1.8	"	8.0(b)	1.8	"	2.4	"	2.4	2.4
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	4.0	"	4.0	2.0	"	5.0	"	5.0	2.5
02-08-75	"	2.8	"	2.9	2.8	"	2.3	"	2.3	2.3
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
03-01-75	"	7.5	"	7.7	2.5	"	10.0	"	10.0	3.3
03-09-75	"	2.6	"	2.5	2.5	"	4.3	"	4.3	4.3
03-16-75	"	2.6	"	2.4	2.4	"	3.7	"	3.7	3.7
03-22-75	"	1.9	"	1.9	2.2	"	3.0	"	3.0	3.5
03-29-75	"	2.2	"	2.2	2.2	"	3.4	"	3.5	3.4
04-05-75	"	2.0	"	2.0	2.0	"	3.3	"	3.3	3.3
04-12-75	"	2.0	"	1.8	1.8	"	3.0	"	3.0	3.0
04-19-75	"	2.0	"	2.3	2.0	"	3.5	"	3.5	3.5
04-26-75	"	2.0	"	2.0	2.0	"	3.8	"	4.0	3.8
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	4.7	"	4.7	2.3	"	8.0	"	8.0	4.0
05-16-75	"	3.5	"	3.5	4.1	"	5.0	"	5.0	5.8
05-24-75	"	4.5	"	4.5	3.9	"	7.5	"	7.0	6.1
05-31-75	"	2.6	"	2.8	2.6	"	4.0	"	4.0	4.0
06-07-75	"	2.8	"	3.4	2.8	"	4.6	"	4.6	4.6
06-14-75	"	3.0	"	3.0	3.0	"	4.5	"	4.5	4.5
06-21-75	"	3.5	"	3.7	3.5	"	5.5	"	5.5	5.5
06-28-75	"	3.5	"	3.5	3.5	"	5.5	"	5.5	5.5

(a) No reading due to weather conditions.
(b) Apparently anomalous reading.

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
01-04-75	2474	2.1	2455	2.0	2.0	2559	2.0	2431	2.0	2.0
01-11-75	"	2.0	"	2.0	2.0	"	2.0	"	2.0	2.0
01-18-75	"	1.7	"	1.8	1.7	"	1.8	"	1.8	1.8
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	3.6	"	3.6	1.8	"	4.0	"	4.0	2.0
02-08-75	"	1.8	"	1.7	1.7	"	1.6	"	1.6	1.6
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
03-01-75	"	6.0	"	6.5	2.0	"	6.5	"	6.5	2.2
03-09-75	"	2.2	"	2.2	1.9	"	2.5	"	2.5	2.5
03-16-75	"	2.2	"	2.2	2.2	"	2.0	"	2.0	2.0
03-22-75	"	2.0	"	2.0	2.3	"	1.8	"	1.9	2.1
03-29-75	"	1.9	"	1.8	1.8	"	1.8	"	1.8	1.8
04-05-75	"	2.0	"	FS	2.0	"	2.0	"	1.8	1.8
04-12-75	"	1.7	"	1.9	1.7	"	2.0	"	2.1	2.0
04-19-75	"	2.0	"	2.0	2.0	"	2.0	"	1.9	1.9
04-26-75	"	2.0	"	1.8	1.8	"	2.0	"	1.9	1.9
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	4.0	"	4.0	2.0	"	4.5	"	4.5	2.2
05-16-74	"	1.8	"	1.8	2.1	"	1.7	"	1.7	2.0
05-24-75	"	2.2	"	2.2	1.9	"	2.5	"	2.5	2.2
05-31-75	"	2.1	"	2.1	2.1	"	2.7	"	2.5	2.5
06-07-75	"	2.0	"	1.7	1.7	"	1.7	"	1.7	1.7
06-14-75	"	1.7	"	1.7	1.7	"	2.1	"	2.2	2.1
06-21-75	"	1.8	"	1.8	1.8	"	2.0	"	2.0	2.0
06-28-75	"	1.7	"	1.7	1.7	"	2.0	"	1.5	1.5

FS -Full Scale.
(a) No reading due to weather conditions.

TABLE 5.1-6

IONIZATION CHAMBER READINGS

Indicator Station

Week Ending	D-47 PRAIRIE PARK PP				
	Serial Number	mR	Serial Number	mR	mR/Week
01-04-75	2422	1.8	2567	1.8	1.8
01-11-75	"	1.8	"	1.8	1.8
01-18-75	"	1.7	"	1.7	1.7
01-25-75	"	(a)	"	(a)	-
02-01-75	"	4.0	"	4.2	2.0
02-08-75	"	1.6	"	1.6	1.6
02-15-75	"	(a)	"	(a)	-
02-22-75	"	3.5	"	3.5	1.8
03-01-75	"	2.1	"	2.1	0.7(b)
03-09-75	"	2.5	"	2.5	2.5
03-16-75	"	2.1	"	2.1	2.1
03-22-75	"	1.6	"	1.8	1.9
03-29-75	"	2.0	"	2.0	2.0
04-05-75	"	1.5	"	1.5	1.5
04-12-75	"	2.0	"	2.0	2.0
04-19-75	"	2.0	"	2.0	2.0
04-26-75	"	2.3	"	2.2	2.2
05-03-75	"	(a)	"	(a)	-
05-10-75	"	3.5	"	3.5	1.8
05-16-75	"	1.5	"	1.5	1.8
05-24-75	"	2.2	"	2.2	1.9
05-31-75	"	2.0	"	1.6	1.6
06-07-75	"	1.8	"	1.5	1.5
06-14-75	"	1.5	"	1.7	1.5
06-21-75	"	2.0	"	2.0	2.0
06-28-75	"	1.8	"	1.8	1.8

Week Ending	D-44 GOOSE LAKE VILLAGE GLV				
	Serial Number	mR	Serial Number	mR	mR/Week
01-04-75	2525	2.0	2724	2.0	2.0
01-11-75	"	1.8	"	2.0	1.8
01-18-75	"	1.6	"	1.7	1.6
01-25-75	"	(a)	"	(a)	-
02-01-75	"	3.8	"	3.8	1.9
02-08-75	"	1.6	"	1.6	1.6
02-15-75	"	(a)	"	(a)	-
02-22-75	"	(a)	"	(a)	-
03-01-75	"	6.6	"	6.6	2.2
03-09-75	"	2.5	"	2.5	2.5
03-16-75	"	2.1	"	2.2	2.1
03-22-75	"	1.6	"	1.6	1.9
03-29-75	"	1.8	"	1.8	1.8
04-05-75	"	1.5	"	1.5	1.5
04-12-75	"	2.0	"	2.0	2.0
04-19-75	"	2.0	"	2.0	2.0
04-26-75	"	1.5	"	1.5	1.5
05-03-75	"	(a)	"	(a)	-
05-10-75	"	3.2	"	3.2	1.6
05-16-75	"	1.5	"	1.5	1.8
05-24-75	"	2.3	"	2.3	2.0
05-31-75	"	2.0	"	2.0	2.0
06-07-75	"	1.7	"	1.6	1.6
06-14-75	"	1.6	"	1.5	1.5
06-21-75	"	1.8	"	1.8	1.8
06-28-75	"	1.6	"	1.7	1.6

(a) No reading due to weather conditions.
(b) Apparently anomalous reading.

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-02 ELWOOD J15					D-03 JOLIET, BRANDON RD. J48				
	Serial Number	mR	Serial Number	mR	mR/Week	Serial Number	mR	Serial Number	mR	mR/Week
01-04-75	2467	1.8	2466	1.8	1.8	2405	2.1	2554	2.0	2.0
01-11-75	"	1.8	"	1.8	1.8	"	2.2	"	2.3	2.2
01-18-75	"	1.8	"	1.8	1.8	"	2.1	"	2.2	2.1
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	3.5	"	3.6	1.8	"	4.0	"	3.9	1.9
02-08-75	"	1.8	"	1.8	1.8	"	2.1	"	2.1	2.1
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
03-01-75	"	5.6	"	5.9	1.9	"	6.5	"	6.8	2.2
03-09-75	"	2.1	"	2.2	2.1	"	2.5	"	2.5	2.5
03-16-75	"	2.0	"	2.2	2.0	"	1.8	"	1.8	1.8
03-22-75	"	1.8	"	1.5	1.8	"	1.4	"	1.7	1.6
03-29-75	"	2.1	"	1.7	1.7	"	1.4	"	1.4	1.4
04-05-75	"	2.0	"	2.4	2.0	"	1.9	"	1.5	1.5
04-12-75	"	1.6	"	1.6	1.6	"	1.2	"	1.5	1.2
04-19-75	"	1.8	"	1.8	1.8	"	2.0	"	2.0	2.0
04-26-75	"	1.7	"	2.0	1.7	"	1.5	"	1.5	1.5
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	3.6	"	3.6	1.8	"	3.5	"	3.5	1.8
05-16-75	"	1.8	"	1.6	1.9	"	1.5	"	1.5	1.8
05-24-75	"	2.0	"	2.0	1.8	"	2.0	"	2.0	1.8
05-31-75	"	2.0	"	2.5	2.0	"	2.0	"	2.2	2.0
06-07-75	"	1.5	"	1.5	1.5	"	1.5	"	1.5	1.5
06-14-75	"	1.6	"	1.6	1.6	"	1.8	"	1.8	1.8
06-21-75	"	1.9	"	2.0	1.9	"	2.0	"	2.0	2.0
06-28-75	"	2.0	"	2.0	2.0	"	2.0	"	2.0	2.0

(a) No reading due to weather conditions.

TABLE 5.1-8

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-04 Serial Number	mR	WILMINGTON Serial Number	mR	464 mR/Week	D-06 Serial Number	mR	MORRIS Serial Number	mR	J16 mR/Week
01-04-75	2537	1.6	2642	1.6	1.6	2411	2.0	2437	1.8	1.8
01-11-75	"	1.7	"	1.7	1.7	"	2.1	"	2.0	2.0
01-18-75	"	1.6	"	1.6	1.6	"	1.7	"	1.8	1.7
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	3.3	"	3.5	1.6	"	3.5	"	3.6	1.8
02-08-75	"	1.6	"	1.6	1.6	"	1.8	"	2.0	1.8
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	(a)	"	(a)	-	"	3.6	"	3.8	1.8
03-01-75	"	5.5	"	5.2	1.7	"	1.9	"	1.8	1.8
03-09-75	"	2.0	"	2.0	2.0	"	2.1	"	2.2	2.1
03-16-75	"	1.5	"	1.5	1.5	"	2.0	"	2.0	2.0
03-22-75	"	1.3	"	1.3	1.5	"	1.7	"	1.8	2.0
03-29-75	"	1.5	"	1.5	1.5	"	1.9	"	1.7	1.7
04-05-75	"	1.5	"	2.5	1.5	"	1.8	"	1.6	1.6
04-12-75	"	1.8	"	1.8	1.8	"	1.5	"	1.7	1.5
04-19-75	"	2.0	"	2.0	2.0	"	2.0	"	2.0	2.0
04-26-75	"	1.5	"	1.5	1.5	"	1.6	"	1.6	1.6
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	3.0	"	3.2	1.5	"	3.2	"	3.5	1.6
05-16-75	"	1.4	"	1.4	1.6	"	1.5	"	1.6	1.8
05-24-75	"	1.8	"	1.8	1.6	"	2.0	"	2.0	1.8
05-31-75	"	2.0	"	2.0	2.0	"	1.6	"	1.6	1.6
06-07-75	"	1.6	"	1.6	1.6	"	1.6	"	1.6	1.6
06-14-75	"	1.5	"	1.6	1.5	"	1.4	"	1.6	1.4
06-21-75	"	2.0	"	2.0	2.0	"	1.8	"	1.8	1.8
06-28-75	"	2.0	"	2.2	2.0	"	1.7	"	1.6	1.6

(a) No reading due to weather conditions.

TABLE 5.1-9

IONIZATION CHAMBER READINGS
Background Stations

Week Ending	D-07 Serial Number	mR	LISBON Serial Number	mR	J24 mR/Week	D-08 Serial Number	mR	COAL CITY Serial Number	mR	J68 mR/Week
01-04-75	2694	1.8	2695	1.8	1.8	2582	2.0	2421	2.1	2.0
01-11-75	"	1.8	"	1.8	1.8	"	2.0	"	2.0	2.0
01-18-75	"	1.8	"	1.8	1.8	"	1.8	"	2.2	1.8
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	3.8	"	3.8	1.9	"	3.6	"	4.1	1.8
02-08-75	"	1.5	"	1.5	1.5	"	1.6	"	1.6	1.6
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	3.5	"	3.2	1.6	"	(a)	"	(a)	-
03-01-75	"	1.6	"	1.6	1.6	"	6.2	"	6.5	2.1
03-09-75	"	1.9	"	1.8	1.8	"	1.7	"	1.7	1.7
03-16-75	"	2.0	"	1.8	1.8	"	2.1	"	2.2	2.1
03-22-75	"	1.6	"	1.1	1.3	"	1.5	"	1.6	1.8
03-29-75	"	1.5	"	1.5	1.5	"	1.5	"	1.7	1.5
04-05-75	"	1.1	"	1.5	1.1	"	1.4	"	1.7	1.4
04-12-75	"	1.5	"	1.2	1.2	"	1.4	"	1.5	1.4
04-19-75	"	1.7	"	1.8	1.7	"	1.9	"	2.0	1.9
04-26-75	"	1.5	"	1.5	1.5	"	1.5	"	1.5	1.5
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	3.0	"	3.0	1.5	"	3.2	"	3.5	1.6
05-16-75	"	1.5	"	1.5	1.8	"	1.5	"	1.5	1.8
05-24-75	"	1.8	"	1.8	1.6	"	2.2	"	2.2	1.9
05-31-75	"	1.5	"	1.5	1.5	"	2.0	"	2.0	2.0
06-07-75	"	1.6	"	1.5	1.5	"	1.4	"	1.7	1.4
06-14-75	"	1.3	"	1.6	1.3	"	1.8	"	1.5	1.5
06-21-75	"	1.8	"	1.8	1.8	"	2.0	"	2.2	2.0
06-28-75	"	1.7	"	1.5	1.5	"	1.8	"	2.0	1.8

(a) 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
01-04-75	2463	2.0	2543	2.0	2.0	2610	1.9	2397	2.0	1.9
01-11-75	"	1.8	"	1.8	1.8	"	1.8	"	2.0	1.8
01-18-75	"	1.8	"	1.8	1.8	"	1.7	"	1.8	1.7
01-25-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-01-75	"	3.6	"	3.6	1.8	"	4.0	"	4.1	2.0
02-08-75	"	1.9	"	1.8	1.8	"	1.5	"	1.8	1.5
02-15-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
02-22-75	"	3.6	"	4.0	1.8	"	3.5	"	3.5	1.8
03-01-75	"	1.9	"	1.8	1.8	"	1.7	"	1.8	1.7
03-09-75	"	2.3	"	2.1	2.1	"	2.0	"	2.0	2.0
03-16-75	"	2.5	"	2.5	2.5	"	2.5	"	2.5	2.5
03-22-75	"	1.8	"	1.8	2.1	"	1.9	"	1.8	2.1
03-29-75	"	1.7	"	1.7	1.7	"	1.8	"	2.0	1.8
04-05-75	"	1.6	"	1.6	1.6	"	1.6	"	1.7	1.6
04-12-75	"	1.5	"	1.5	1.5	"	2.1	"	1.7	1.7
04-19-75	"	2.0	"	1.5	1.5	"	2.5	"	2.0	2.0
04-26-75	"	1.6	"	1.6	1.6	"	1.6	"	1.7	1.6
05-03-75	"	(a)	"	(a)	-	"	(a)	"	(a)	-
05-10-75	"	3.3	"	3.7	1.6	"	3.5	"	3.5	1.8
05-16-75	"	1.7	"	1.7	2.0	"	1.8	"	1.8	2.1
05-24-75	"	2.0	"	2.1	1.8	"	2.0	"	2.3	2.0
05-31-75	"	2.5	"	2.5	2.5	"	2.5	"	2.5	2.5
06-07-75	"	1.6	"	1.5	1.5	"	1.6	"	1.6	1.6
06-14-75	"	1.7	"	1.7	1.7	"	1.5	"	1.6	1.5
06-21-75	"	2.0	"	2.0	2.0	"	1.8	"	1.8	1.8
06-28-75	"	1.5	"	1.5	1.5	"	2.0	"	2.0	2.0

(a) No reading due to weather conditions.

TA 5.2-1

AIRBORNE IODINE-131* AND GROSS ALPHA AND BETA IN AIR PARTICULATES
INDICATOR STATIONS

	D-09 BENNITT BE			D-15 CLAY PRODUCTS J21		
Week Ending	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)
01-04-75	285	3 ± 2	7 ± 1	280	5 ± 2	6 ± 1
01-11-75	285	-	9 ± 1	290	-	10 ± 1
01-18-75	285	-	11 ± 1	285	-	8 ± 1
01-22-75	290	-	10 ± 1	290	-	11 ± 1
02-01-75	285	<1	11 ± 1	285	<1	12 ± 1
02-08-75	285	-	12 ± 1	285	-	12 ± 1
02-15-75	285	-	13 ± 1	280	-	17 ± 1
02-22-75	285	-	12 ± 1	285	-	7 ± 1
03-01-75	295	<1	7 ± 1	295	<1	9 ± 1
03-09-75	330	-	11 ± 1	325	-	9 ± 1
03-16-75	275	-	18 ± 1	275	-	21 ± 2
03-22-75	245	-	17 ± 1	245	-	20 ± 1
03-29-75	285	-	11 ± 1	285	-	15 ± 1
04-05-75	290	2 ± 1	15 ± 1	290	4 ± 1	15 ± 1
04-12-75	285	-	21 ± 1	285	-	25 ± 2
04-19-75	295	-	21 ± 2	290	-	22 ± 2
04-26-75	280	-	11 ± 1	280	-	13 ± 1
05-03-75	285	<1	15 ± 1	285	<1	11 ± 1
05-10-75	285	-	13 ± 1	285	-	15 ± 1
05-16-75	270	-	14 ± 1	255	-	19 ± 1
05-24-75	285	-	11 ± 1	310	-	14 ± 1
05-31-75	105	-	9 ± 1	105	-	10 ± 1
06-07-75	295	1 ± 1	10 ± 1	295	1 ± 1	11 ± 1
06-14-75	275	-	7 ± 1	280	-	8 ± 1
06-21-75	285	-	<1	285	-	5 ± 1
06-28-75	(a)	-	-	235	-	9 ± 1

*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) Pump out of order - no sample received.

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 Volume (m^3)	Gross β (10^{-2}pCi/m^3)	D-17 ON-SITE STATION #2 B Volume (m^3)	Gross β (10^{-2}pCi/m^3)	D-18 ON-SITE STATION #3 C Volume (m^3)	Gross α (10^{-3}pCi/m)	Gross β (10^{-2}pCi/m^3)
01-04-75	275	9 ± 1	275	7 ± 1	275	5 ± 2	8 ± 1
01-11-75	290	8 ± 1	295	9 ± 1	295	-	5 ± 1
01-18-75	285	8 ± 1	285	9 ± 1	285	-	9 ± 1
01-25-75	290	11 ± 1	285	12 ± 1	285	-	10 ± 1
02-01-75	285	10 ± 1	285	12 ± 1	285	2 ± 2	12 ± 1
02-08-75	285	12 ± 1	285	16 ± 1	285	-	14 ± 1
02-15-75	280	13 ± 1	280	15 ± 1	280	-	16 ± 1
02-22-75	285	12 ± 1	285	15 ± 1	285	-	13 ± 1
03-01-75	295	9 ± 1	295	9 ± 1	295	<1	9 ± 1
03-09-75	325	9 ± 1	325	17 ± 1	325	-	10 ± 1
03-16-75	275	19 ± 1	275	2 ± 1	275	-	21 ± 2
03-22-75	245	23 ± 2	250	21 ± 2	250	-	21 ± 2
03-29-75	285	13 ± 1	285	13 ± 1	285	-	11 ± 1
04-05-75	290	18 ± 1	290	17 ± 1	290	3 ± 1	17 ± 1
04-12-75	285	22 ± 1	285	22 ± 1	285	-	26 ± 2
04-19-75	290	21 ± 2	290	20 ± 1	290	-	21 ± 2
04-26-75	280	12 ± 1	280	13 ± 1	280	-	13 ± 1
05-03-75	285	15 ± 1	285	15 ± 1	285	2 ± 2	15 ± 1
05-10-75	285	16 ± 1	285	16 ± 1	285	-	16 ± 1
05-16-75	255	13 ± 1	255	22 ± 1	255	-	21 ± 2
05-24-75	310	11 ± 1	305	21 ± 1	305	-	14 ± 1
05-31-75	280	10 ± 1	280	12 ± 1	280	-	13 ± 1
06-07-75	280	11 ± 1	280	11 ± 1	280	2 ± 1	12 ± 1
06-14-75	290	9 ± 1	295	8 ± 1	290	-	8 ± 1
06-21-75	285	7 ± 1	285	7 ± 1	285	-	7 ± 1
06-28-75	285	8 ± 1	290	8 ± 1	290	-	8 ± 1

*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 ...ed on counting errors.

TABLE 2.2-3

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)
01-04-75	275	6 ± 2	8 ± 1	275	2 ± 2	5 ± 1	285	6 ± 1
01-11-75	295	-	9 ± 1	295	-	5 ± 1	285	8 ± 1
01-18-75	285	-	11 ± 1	285	-	4 ± 1	110	6 ± 1
01-25-75	285	-	12 ± 1	290	-	3 ± 1	(a)	(a)
02-01-75	290	2 ± 2	11 ± 1	285	<1	4 ± 1	285	7 ± 1
02-08-75	280	-	13 ± 1	285	-	15 ± 1	285	9 ± 1
02-15-75	280	-	15 ± 1	280	-	16 ± 1	280	10 ± 1
02-22-75	285	-	11 ± 1	185	-	13 ± 1	285	10 ± 1
03-01-75	295	<1	7 ± 1	290	<1	7 ± 1	290	8 ± 1
03-09-75	325	-	10 ± 1	325	-	7 ± 1	325	10 ± 1
03-16-75	275	-	18 ± 1	275	-	19 ± 1	275	21 ± 2
03-22-75	245	-	18 ± 1	245	-	20 ± 1	245	22 ± 2
03-29-75	285	-	12 ± 1	285	-	13 ± 1	285	14 ± 1
04-05-75	290	<1	17 ± 1	290	3 ± 1	13 ± 1	290	12 ± 1
04-12-75	285	-	22 ± 1	285	-	24 ± 2	285	22 ± 2
04-19-75	290	-	20 ± 1	290	-	21 ± 2	290	21 ± 2
04-26-75	280	-	6 ± 1	280	-	13 ± 1	280	11 ± 1
05-03-75	290	<1	16 ± 1	290	<1	17 ± 1	285	15 ± 1
05-10-75	285	-	16 ± 1	285	-	17 ± 1	285	17 ± 1
05-16-75	255	-	18 ± 1	255	-	18 ± 1	255	20 ± 2
05-24-75	305	-	14 ± 1	310	-	14 ± 1	310	14 ± 1
05-31-75	280	-	11 ± 1	240	-	10 ± 1	105	12 ± 1
06-07-75	280	2 ± 1	12 ± 1	260	2 ± 1	10 ± 1	285	11 ± 1
06-14-75	290	-	6 ± 1	290	-	6 ± 1	285	7 ± 1
06-21-75	285	-	6 ± 1	285	-	5 ± 1	285	4 ± 1
06-28-75	30(a)	-	9 ± 1	285	-	8 ± 1	258	7 ± 1

(a) Pump out of order
*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.

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)	Gross β (10^{-2}pCi/m^3)	D-03 JOLIET, BRANDON ROAD J48 Volume (m^3)	Gross α (10^{-3}pCi/m^3)	Gross β (10^{-2}pCi/m^3)	D-04 WILMINGTON 464 Volume (m^3)	Gross β (10^{-2}pCi/m^3)
01-04-75	280	9 ± 1	280	2 ± 2	7 ± 1	280	9 ± 1
01-11-75	290	8 ± 1	290	-	9 ± 1	290	9 ± 1
01-18-75	285	12 ± 1	285	-	11 ± 1	285	12 ± 1
01-25-75	290	11 ± 1	290	-	10 ± 1	290	11 ± 1
02-01-75	290	8 ± 1	290	<1	12 ± 1	290	9 ± 1
02-08-75	280	13 ± 1	280	-	12 ± 1	280	12 ± 1
02-15-75	280	14 ± 1	280	-	15 ± 1	280	14 ± 1
02-22-75	285	11 ± 1	295	-	13 ± 1	285	13 ± 1
03-01-75	295	7 ± 1	295	<1	9 ± 1	295	9 ± 1
03-09-75	325	10 ± 1	325	-	9 ± 1	325	10 ± 1
03-16-75	275	19 ± 1	275	-	22 ± 2	275	17 ± 1
03-22-75	250	17 ± 1	250	-	19 ± 1	250	15 ± 1
03-29-75	285	14 ± 1	285	-	13 ± 1	285	5 ± 1
04-05-75	290	19 ± 1	290	2 ± 1	12 ± 1	290	17 ± 1
04-12-75	285	24 ± 2	285	-	19 ± 1	285	21 ± 2
04-19-75	290	18 ± 1	290	-	20 ± 1	290	14 ± 1
04-26-75	280	11 ± 1	280	-	13 ± 1	280	11 ± 1
05-03-75	285	17 ± 1	285	1 ± 1	14 ± 1	285	12 ± 1
05-10-75	285	15 ± 1	285	-	14 ± 1	285	15 ± 1
05-16-75	255	19 ± 1	255	-	19 ± 1	255	19 ± 1
05-24-75	305	11 ± 1	305	-	14 ± 1	305	14 ± 1
05-31-75	280	7 ± 1	280	-	10 ± 1	280	10 ± 1
06-07-75	20(a)	4 ± 1	290	2 ± 1	10 ± 1	290	11 ± 1
06-14-75	280	6 ± 1	280	-	7 ± 1	280	8 ± 1
06-21-75	285	5 ± 1	285	-	6 ± 1	285	6 ± 1
06-28-75	290	7 ± 1	290	-	8 ± 1	290	9 ± 1

*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) Pump malfunction.

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)
01-04-75	285	3 ± 2	14 ± 1	285	7 ± 1	285	4 ± 2	7 ± 1
01-11-75	285	-	7 ± 1	285	5 ± 1	285	-	8 ± 1
01-18-75	285	-	9 ± 1	285	11 ± 1	285	-	10 ± 1
01-25-75	290	-	10 ± 1	290	13 ± 1	290	-	11 ± 1
02-01-75	285	<1	11 ± 1	285	9 ± 1	285	<1	12 ± 1
02-08-75	285	-	13 ± 1	285	12 ± 1	290	-	13 ± 1
02-15-75	285	-	14 ± 1	285	18 ± 1	280	-	14 ± 1
02-22-75	285	-	13 ± 1	285	12 ± 1	285	-	13 ± 1
03-01-75	295	<1	8 ± 1	295	8 ± 1	290	<1	13 ± 1
03-09-75	325	-	11 ± 1	325	7 ± 1	325	-	8 ± 1
03-16-75	275	-	22 ± 2	275	15 ± 1	275	-	21 ± 2
03-22-75	245	-	16 ± 1	250	17 ± 1	245	-	16 ± 1
03-29-75	285	-	12 ± 1	285	13 ± 1	285	-	12 ± 1
04-05-75	290	<1	15 ± 1	290	18 ± 1	290	2 ± 1	15 ± 1
04-12-75	285	-	20 ± 1	285	21 ± 1	285	-	24 ± 2
04-19-75	290	-	22 ± 2	290	13 ± 1	290	-	8 ± 1
04-26-75	280	-	12 ± 1	230	15 ± 1	55	-	<3**
05-03-75	285	2 ± 2	16 ± 1	285	14 ± 1	(a)	-	-
05-10-75	285	-	14 ± 1	285	13 ± 1	285	1 ± 1	15 ± 1
05-16-75	255	-	16 ± 1	235	19 ± 1	255	-	12 ± 1
05-24-75	310	-	14 ± 1	235	15 ± 1	310	-	12 ± 1
05-31-75	280	-	9 ± 1	50	10 ± 1	105	-	10 ± 1
06-07-75	280	1 ± 1	10 ± 1	295	11 ± 1	285	1 ± 1	9 ± 1
06-14-75	290	-	5 ± 1	270	8 ± 1	285	-	6 ± 1
06-21-75	285	-	4 ± 1	280	5 ± 1	285	-	6 ± 1
06-28-75	285	-	6 ± 1	270	8 ± 1	285	-	6 ± 1

(a) Pump malfunction, no sample received.

*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.

**Filter not fully exposed. Gross β is given as total pCi on the filter.

TABLE 5.2-6

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

Week Ending	D-11 CHANNAHON CH Volume (m^3)	Gross β (10^{-2}pCi/m^3)	D-14 MINOOKA J27 Volume (m^3)	Gross α (10^{-3}pCi/m^3)	Gross β (10^{-2}pCi/m^3)	D-44 GOOSE LAKE VILLAGE GLV Volume (m^3)	Gross α (10^{-3}pCi/m^3)	Gross β (10^{-2}pCi/m^3)
01-04-75	285	7 ± 1	285	3 ± 2	7 ± 1	285	3 ± 2	7 ± 1
01-11-75	285	8 ± 1	240	-	6 ± 1	285	-	8 ± 1
01-18-75	285	10 ± 1	285	-	11 ± 1	-	-	(a)
01-25-75	290	11 ± 1	290	-	9 ± 1	150	-	12 ± 1
02-01-75	285	9 ± 1	285	<1	9 ± 1	-	-	(a)
02-08-75	285	12 ± 1	285	-	12 ± 1	285	1 ± 1	11 ± 1
02-15-75	285	15 ± 1	285	-	14 ± 1	280	-	12 ± 1
02-22-75	285	13 ± 1	285	-	12 ± 1	(b)	-	-
03-01-75	295	10 ± 1	295	<1	8 ± 1	290	<1	6 ± 1
03-09-75	330	12 ± 1	330	-	10 ± 1	325	-	11 ± 1
03-16-75	275	19 ± 1	275	-	21 ± 2	275	-	22 ± 2
03-22-75	245	18 ± 1	245	-	19 ± 1	240	-	18 ± 1
03-29-75	285	12 ± 1	280	-	13 ± 1	285	-	13 ± 1
04-05-75	290	15 ± 1	300	2 ± 1	16 ± 1	290	2 ± 1	17 ± 1
04-12-75	285	21 ± 1	285	-	23 ± 2	285	-	25 ± 2
04-19-75	295	22 ± 2	295	-	22 ± 2	290	-	21 ± 2
04-26-75	280	7 ± 1	280	-	12 ± 1	280	-	9 ± 1
05-03-75	285	15 ± 1	285	2 ± 2	13 ± 1	290	<1	10 ± 1
05-10-75	285	15 ± 1	285	-	15 ± 1	285	-	11 ± 1
05-16-75	255	16 ± 1	255	-	18 ± 1	250	-	18 ± 1
05-24-75	310	13 ± 1	310	-	14 ± 1	310	-	12 ± 1
05-31-75	105	8 ± 1	105	-	10 ± 1	95	-	11 ± 1
06-07-75	280	11 ± 1	295	2 ± 1	10 ± 1	265	<1	10 ± 1
06-14-75	175	7 ± 1	275	-	7 ± 1	280	-	6 ± 1
06-21-75	185	6 ± 1	285	-	7 ± 1	260	-	6 ± 1
06-28-75	185	6 ± 1	285	-	7 ± 1	225	-	8 ± 1

(a) Pump out of order. (b) Sample lost or stolen from holder.
*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.

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 of Collection	10^{-2}pCi/m^3				
	K-40	Be-7	Cs-134	Cs-137	All Others
January	<5	<5	<5	<5	<5
February	<5	11 ± 2	<5	<5	<5
March	<5	4 ± 1	<5	<5	<5
April	<1	3 ± 1	<1	<1	ND
May	<2	9 ± 1	<1	<1	ND
June	<1	14 ± 2	<1	<1	ND

ND - Not detected at system sensitivity. Gamma spectrum is computer scanned from ~25 to >2000 KeV. Routine sensitivities for I-131, Ba-La-140, Cs-134, Zr-95, Cs-137, Co-58, Co-60, Mn-54, Zn-65, Nb-95 is <.01 pCi/m^3 although higher sensitivity may be reported.

*Composite of first weekly sample from all stations.

Data reported as "<" are at the 3σ level, other error term are 2σ.

TABLE 5.3-1

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

Collection Date	Background Station INLET D-19 CANAL 1D Gross α (pCi/1)	Gross β (pCi/1)	Indicator Station DISCHARGE D-20-1 CANAL 1D Gross α (pCi/1)	Gross β (pCi/1)	Indicator Station DISCHARGE D-20-⅔ CANAL ⅔D Gross α (pCi/1)	Gross β (pCi/1)	Indicator Station ILL. RIVER AT D-21 EJ&E RR RR Gross α (pCi/1)	Gross β (pCi/1)
01-04-75	<1	<5	<1	<5	2 ± 1	37 ± 5	<1	<6
01-11-75	<1	<4	<1	4 ± 3	<1	5 ± 4	<1	<4
01-18-75	2 ± 1	36 ± 6	<1	41 ± 6	<1	23 ± 4	1 ± 1	33 ± 5
01-25-75	<1	5 ± 3	<1	5 ± 3	<1	8 ± 3	<1	8 ± 4
02-01-75	<1	3 ± 3	1 ± 1	3 ± 3	<1	<4	<1	<4
02-08-75	<1	4 ± 1	<1	6 ± 1	<1	<4	<1	<5
02-15-75	<1	<3	<1	9 ± 3	<1	4 ± 2	<1	7 ± 4
02-22-75	<1	<4	<1	6 ± 3	<1	<4	<1	<4
03-01-75	1 ± 1	10 ± 1	<1	13 ± 1	<1	10 ± 1	<1	8 ± 1
03-09-75	<1	5 ± 3	<1	3 ± 2	<1	<3	<1	<4
03-16-75	1 ± 1	8 ± 3	< .8	5 ± 3	< .8	<2	2 ± 2	23 ± 6
03-22-75	.8	7 ± 3	< .8	7 ± 1	< .8	8 ± 3	<1	7 ± 4
03-29-75	<1	7 ± 3	< .8	6 ± 3	< .8	7 ± 3	<1	9 ± 4
04-05-75	1 ± 1	2 ± 2	1 ± 1	4 ± 3	1 ± 1	6 ± 3	<1	5 ± 4
04-12-75	< .5	5 ± 3	< .5	2 ± 2	< .5	2 ± 2	< .5	6 ± 3
04-18-75	< .8	3 ± 3	< .8	4 ± 3	< .8	4 ± 3	< .9	5 ± 3
04-26-75	.9 ± .9	5 ± 3	2.7 ± 1.5	8 ± 4	2.1 ± 1.2	7 ± 4	< .5	<3
05-03-75	2.3 ± 1.5	14 ± 6	4.1 ± 1.7	14 ± 6	2.3 ± 1.3	8 ± 6	1.0 ± .9	<5
05-10-75	1 ± 1	11 ± 4	<1	10 ± 4	<1	17 ± 5	1 ± 1	11 ± 4
05-16-75	<1.5(a)	7 ± 5(a)	< .9	5 ± 3	< .9	10 ± 4	<1	9 ± 4
05-24-75	< .5	2 ± 2	< .5	3 ± 2	< .8	2 ± 2	2 ± 1	6 ± 5
05-31-75	< .8	430 ±43	< .7	20 ± 5	< .7	14 ± 4	< .6	20 ± 5
06-07-75	1 ± 1	920 ±90	1 ± 1	12 ± 4	< .5	5 ± 4	< .5	9 ± 4
06-14-75	2 ± 1	265 ±27	1 ± 1	<4	1 ± 1	4 ± 4	1 ± 1	<4
06-21-75	2 ± 1(b)	15 ± 3(b)	2 ± 1	8 ± 3	2 ± 1	7 ± 4	2 ± 1	8 ± 4
06-28-75	< .6	25 ± 6	< .5	21 ± 5	< .5	26 ± 5	< .7	11 ± 6

(a) Contaminated laboratory glassware was the source of this radioactivity. See Text.

*Iodine-131 sampled weekly. Activity is <4 pCi/l 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.

Compositing system not used. Average of individual grab samples.

TABLE 5.3-2

GROSS BETA IN SURFACE WATER SAMPLES
Indicator Stations

Collection Date	D-22 Illinois River at Morris Gross β (pCi/l)	D-34 Dresden Lake (Pond) Gross β (pCi/l)
01-04-75	10 ± 4	7 ± 4
01-11-75	-	4 ± 2
01-18-75	29 ± 7	21 ± 7
01-25-75	-	18 ± 4
02-01-75	9 ± 4	5 ± 4
02-08-75	-	6 ± 1
02-15-75	4 ± 3	<3
02-22-75	-	<4
03-01-75	-	<4
03-09-75	10 ± 3	8 ± 3
03-16-75	-	4 ± 3
03-22-75	6 ± 3	7 ± 3
03-29-75	-	5 ± 4
04-05-75	6 ± 3	5 ± 3
04-12-75	-	7 ± 3
04-19-75	5 ± 3	2 ± 2
04-26-75	-	3 ± 3
05-03-75	19 ± 4	6 ± 3
05-10-75	-	<3
05-16-75	8 ± 3	2 ± 2
05-24-75	-	10 ± 4
05-31-75	-	4 ± 3
06-07-75	8 ± 4	3 ± 3
06-14-75	9 ± 1	7 ± 1
06-21-75	-	5 ± 3
06-28-75	3 ± 3	22 ± 5

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

TABLE 5.3-3

GROSS ALPHA AND GROSS BETA IN
SURFACE WATER SAMPLES

Collection Site	Collection Date	Gross α (pCi/l)	Gross β (pCi/l)
Sanitary Lagoon (D-54)	01-11-75	10 ± 6	<1.4
	02-01-75	<1	<3
	03-09-75	<1.2	17 ± 4
	04-05-75	< .5	13 ± 3
	05-03-75	< .5	15 ± 4
	06-07-75	< .5	16 ± 4
Evaporation Pond (D-55)	01-04-75	<1.1	13 ± 3
	02-01-75	3 ± 1	10 ± 4
	03-01-75	<1	21 ± 4
	04-05-75	2 ± 1	10 ± 5
	05-03-75	1 ± 1	34 ± 5
	06-07-75	< .5	17 ± 4

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

GROSS BETA, TRITIUM, Sr-89 AND Sr-90 IN SURFACE WATER SAMPLES

Collection Site	Collection Date	pCi/l				
		Gross Beta	Tritium	Sr-89	Sr-90	Gamma*
Goose Lake Corp. of Eng.	01-11-75	<4	250 ± 120	(a)	(a)	(a)
Dresden Lock & Dam	02-01-75	11 ± 4	(a)	<2	<1	ND
Pond West of MFRP	03-01-75	(a)	240 ± 110	(a)	(a)	(a)
Goose Lake Corp. of Eng.	04-05-75	5 ± 3	420 ± 90	(a)	(a)	(a)
Dresden Lock & Dam	05-03-75	<3	(a)	<5	<1	ND
Pond West of MFRP	06-07-75	(a)	310 ± 90	(a)	(a)	(a)

(a) Analysis not required.

*The gamma spectrum was scanned from 0 to >1600 KeV. ND signifies that no activity was detected at system sensitivity which at the 3σ levels are as follows: I-131, Be-7, La-140, Cs-134, Cs-137, Zr-95, Nb-95, Co-58, Mn-54, Zn-65, Co-60, K-40 <3 pCi/l per nuclide; Cr-51, Ba-140 <7 pCi/l per nuclide.

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

TABLE 5.3-5

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

Collection Site	Tritium pCi/l		Sr-89 pCi/l		Sr-90 pCi/l	
	Jan. - Mar.	Apr. - June	Jan. - Mar.	Apr. - June	Jan. - Mar.	Apr. - June
Inlet Canal (D-19)	230 ± 110	130 ± 100	<2	<2	<1	<1
Discharge Canal (D-20-1)	280 ± 110	170 ± 100	<2	<2	<1	<1
Discharge Canal (D-20-2/3)	370 ± 110	390 ± 100	<2	<2	<1	<1
Ill. Riv. at EJ&E RR Bridge (D-21)	250 ± 100	190 ± 100	<2	<2	<1	<1
Ill River at Morris (D-22)	320 ± 100	400 ± 100	(a)	(a)	(a)	(a)
Dresden Lake (Pond) (D-34)	350 ± 100	350 ± 100	(a)	(a)	(a)	(a)

(a) Analysis 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.

TABLE 5.3-6

GROSS BETA ANALYSES OF PERIPHYTON (SLIME) SAMPLES

Collection Site	Collection Date	pCi/g (Dry) Gross Beta
Dresden Lock & Dam	02-01-75	56 ± 6
	05-03-75	14 ± 2
Kankakee River	02-01-75	9 ± 1
	05-03-75	13 ± 3
Des Plaines River	02-01-75	14 ± 2
	05-03-75	18 ± 2

TABLE 5.3-7

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

Collection Site	Collection Date	pCi/gm (Dry) Gross Beta	Sr-89	Sr-90
Dresden Lock & Dam	02-01-75	18 ± 1	<1	<1
	05-03-75	12 ± 1	<1	<1
Kankakee River	02-01-75	59 ± 6	<1	<1
	05-03-75	5 ± 1	<1	<1
Des Plaines River	02-01-75	1 ± 1	<1	<1
	05-03-75	12 ± 2	<1	<1

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

TABLE 5.3-8

RADIONUCLIDES IN AQUATIC PLANTS

Collection Site	Collection Date	Wt. Ratio Wet - Dry	pCi/gm (Dry) Gross Beta	Cs-134	Cs-137	Co-60	I-131	Sr-89	Sr-90
Discharge Canal	05-26-75	1.23	28 ± 4	<1	<1	<1	<1	<2	<1
Discharge Canal	05-26-75	9.03	30 ± 4	<1	<1	1 ± 1	<1	<2	<1
Inlet Canal	05-31-75	5.35	17 ± 2	<1	<1	<1	<1	<2	<1

TABLE 5.3-9

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

D-23 DRESDEN LOCK & DAM

Sample Description	Collection Date	Radionuclide Concentration pCi/g (Wet) Gross Beta	K-40	Cs-134	Cs-137	Ba-140	Sr-89	Sr-90
Bass-Edible	05-10-75	10 ± 1	10 ± 3	<.1	<.1	<.1	<.1	<.1
Bass-Whole	05-10-75	14 ± 1	17 ± 4	<.1	<.1	<.1	<.1	<.1

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

TABLE 5.4-1

IODINE-131 IN MILK

Collection Date	DAVIDSON FARM D-30 DA	PHILLIPS FARM D-48 PH	MATHER FARM D-53 MF
01-04-75	<4	<4	<4
01-11-75	<4	<4	<4
01-18-75	<4	<4	<4
01-25-75	<4	<4	<4
02-01-75	<4	<4	<4
02-08-75	<4	<4	<4
02-15-75	<4	<4	<4
02-22-75	<4	<4	<4
03-01-75	<4	<4	<4
03-09-75	<4	<4	<4
03-16-75	<4	<4	<4
03-22-75	<4	<4	<4
03-29-75	<4	<4	<4
04-05-75	< .5	< .5	< .5
04-12-75	< .5	< .5	< .5
04-19-75	< .5	< .5	< .5
04-26-75	< .5	< .5	< .5
05-03-75	< .5	< .5	< .5
05-10-75	< .5	< .5	< .5
05-16-75	< .5	< .5	< .5
05-24-75	< .5	< .5	< .5
05-31-75	< .5	< .5	< .5
06-07-75	< .5	< .5	< .5
06-14-75	< .5	< .5	< .5
06-21-75	< .5	< .5	< .5
06-28-75	< .5	< .5	< .5

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

TABLE 5.4-2

RADIONUCLIDES IN MILK

Monthly Composites

	D-30		DAVIDSON FARM	DA
Month of Collection	Sr-89 (pCi/l)	Sr-90 (pCi/l)	Cs-137 (pCi/l)	Calcium (g/l)
January	<5	<2	<5	1.21
February	<5	3 ± 1	<5	1.22
March	<5	2 ± 1	<5	1.87
April	<5	6 ± 1	<5	1.30
May	<5	5 ± 1	<5	1.41
June	<5	3 ± 1	<5	1.26

	D-48		PHILLIPS FARM	PH
Month of Collection	Sr-89 (pCi/l)	Sr-90 (pCi/l)	Cs-137 (pCi/l)	Calcium (g/l)
January	<5	8 ± 4	<5	1.51
February	<5	6 ± 1	<5	1.27
March	<5	8 ± 3	<5	1.15
April	<5	10 ± 2	<5	1.39
May	<5	3 ± 3	<5	1.24
June	<5	5 ± 1	<5	1.58

	D-53		MATHER FARM	MF
Month of Collection	Sr-89 (pCi/l)	Sr-90 (pCi/l)	Cs-137 (pCi/l)	Calcium (g/l)
January	<5	2 ± 2	<5	1.39
February	<5	4 ± 1	<5	1.36
March	<5	5 ± 2	<5	1.25
April	<5	4 ± 1	<5	1.56
May	<5	3 ± 2	<5	1.27
June	<5	5 ± 1	<5	1.27

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

GROSS BETA AND RADIOSTRONTIUM IN GRASS AND CATTLE FEED

Collection Site	Collection Date	Type Feed	Wt. Ratio Wet - Dry	pCi/kg(Dry) Gross Beta	Sr-89	Sr-90
Mather Farm (D-53) Background Station	01-04-75	Grain	1.74	5 ± 1	<2	<1
	01-04-75	Hay	1.24	13 ± 1.4	<2	<1
	02-01-75	Grain	1.95	5 ± 1	<2	<1
	02-01-75	Hay	1.35	14 ± 1	<2	<1
	03-01-75	Grain	1.23	3 ± 1	<2	<1
	03-01-75	Hay	3.57	8 ± 1	<2	<1
	04-05-75	Grass	1.62	48 ± 5	<2	<1
	04-05-75	Grain	1.45	13 ± 1	<2	<1
	04-05-75	Hay	1.27	14 ± 1	<2	<1
	05-03-75	Grass	2.85	37 ± 4	<2	<1
	05-03-75	Feed	1.47	5 ± 1	<2	<1
	06-07-75	Grass	1.16	35 ± 4	<2	<1
	06-07-75	Feed	1.15	4 ± 1	<2	<1

TRITIUM IN GRASS SAMPLES

D-39 Behind GE Simulator

Collection Date	HTO (pCi/l)
03-01-75	< .4
06-07-75	< .4

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 (Cont'd)

GROSS BETA AND RADIOSTRONTIUM IN GRASS AND CATTLE FEED

Collection Site	Collection Date	Type Feed	Wt. Ratio Wet - Dry	pCi/kg (Dry) Gross Beta	Sr-89	Sr-90
Davidson Farm (D-30) Indicator Station	01-04-75	Grain	1.57	8 ± 1	<2	<1
	01-04-75	Hay	1.20	24 ± 2	<2	<1
	02-01-75	Grain	1.34	13 ± 1	<2	<1
	02-01-75	Hay	1.17	11 ± 1	<2	<1
	03-01-75	Grain	3.16	9 ± 1	<2	<1
	03-01-75	Hay	1.19	1 ± 1	<2	<1
	04-05-75	Grass	2.84	57 ± 6	<2	<1
	04-05-75	Grain	1.36	10 ± 1	<2	<1
	04-05-75	Hay	1.15	39 ± 4	<2	<1
	05-03-75	Grass	3.88	42 ± 4	<2	<1
	05-03-75	Feed	1.84	10 ± 1	<2	<1
	06-07-75	Grass	4.17	40 ± 4	<2	<1
	06-07-75	Feed	1.14	9 ± 1	<2	<1
Phillips Farm (D-48) Indicator Station	01-04-75	Grain	1.10	3 ± 1	<2	<1
	01-04-75	Hay	1.51	31 ± 2	<2	<1
	02-01-75	Grain	1.14	4 ± 1	<2	<1
	02-01-75	Hay	1.36	22 ± 2	<2	<1
	03-01-75	Grain	1.12	3 ± 1	<2	<1
	03-01-75	Hay	1.23	23 ± 1	<2	<1
	04-05-75	Grass	2.22	33 ± 3	<2	<1
	04-05-75	Grain	1.09	3 ± 1	<2	<1
	04-05-75	Hay	1.04	32 ± 2	<2	<1
	05-03-75	Grass	4.51	34 ± 3	<2	<1
	05-03-75	Feed	1.31	4 ± 1	<2	<1
	06-07-75	Grass	5.08	41 ± 4	<2	<1
	06-07-75	Feed	1.08	6 ± 1	<2	<1

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

TABLE 5.4-4

GAMMA ISOTOPIC ANALYSES OF GRASS AND CATTLE FEED

Collection Site	Collection Date	Type Feed	pCi/gm (Dry) Cs-137	I-131	Others*
Davidson Farm	01-04-75	Grain	<1	<1	ND
(D-30)	01-04-75	Hay	<1	<1	ND
Indicator Station	02-01-75	Grain	<1	<1	ND
	02-01-75	Hay	<1	<1	ND
	04-05-75	Grass	<1	<.1	ND
	05-03-75	Grass	<1	<.1	ND
	06-07-75	Grass	<1	<.1	ND
	06-07-75	Feed	<1	<.1	ND
Phillips Farm	01-04-75	Grain	<1	<1	ND
(D-48)	01-04-75	Hay	<1	<1	ND
Indicator Station	02-01-75	Grain	<1	<1	ND
	02-01-75	Hay	<1	<1	ND
	04-05-75	Grass	2 ± 1	<1	ND
	05-03-75	Grass	<1	<1	ND
	06-07-75	Grass	<1	<1	ND
	06-07-75	Feed	<1	<1	ND
Mather Farm	01-04-75	Grain	<1	<1	ND
(D-53)	01-04-75	Hay	<1	<1	ND
Background Station	02-01-75	Grain	<1	<1	ND
	02-01-75	Hay	<1	<1	ND
	04-05-75	Grass	1 ± 1	<1	ND
	05-03-75	Grass	<1	<1	ND
	06-07-75	Grass	<1	<1	ND
	06-07-75	Feed	<1	<1	ND

*ND = not detected at system sensitivity. Gamma spectrum is computer scanned from ~25 to ~2000 KeV. Routine sensitivities for I-131, Ba-La-140, Cs-134, Zr-95, Nb-95, Cs-137, Co-58, Co-60, Mn-54, Zn-65, is <1 pCi/gm although higher sensitivity may be reported. Data reported as "<" are at the 3σ level, other error terms are 2σ.

TABLE 5.5-1

RADIONUCLIDE CONCENTRATIONS IN PRECIPITATION

JANUARY-JUNE 1975

Collection Site	Collection Date	Gross Beta (pCi/l) (1)	Gross Beta (pCi/m^2) (1)	H-3 as Water (pCi/l) (1)
On-Site #2	January	68 ± 7	3100 ± 300	270 ± 120
(D-17)	February	75 ± 8	1850 ± 185	360 ± 120
Indicator Station	March	115 ± 11	3100 ± 300	290 ± 80
	April	65 ± 7	3600 ± 400	230 ± 120
	May	29 ± 4	1815 ± 240	340 ± 110
	June	84 ± 6	1250 ± 125	480 ± 100
Davidson Farm	January	49 ± 5	2650 ± 260	<120
(D-30)	February	40 ± 4	1145 ± 115	250 ± 120
Background Station	March	47 ± 5	1940 ± 200	290 ± 80
	April	14 ± 3	1500 ± 300	180 ± 130
	May	29 ± 4	2230 ± 300	260 ± 120
	June	14 ± 3	460 ± 100	690 ± 110
Brandon Lock & Dam	January	71 ± 7	2622 ± 260	150 ± 120
(D-32)	February	82 ± 8	4130 ± 415	250 ± 110
Background Station	March	135 ± 14	4830 ± 500	310 ± 80
	April	59 ± 6	4800 ± 500	200 ± 120
	May	46 ± 5	3100 ± 300	220 ± 80
	June	28 ± 6	315 ± 70	310 ± 100
Mather Farm	January	49 ± 5	2400 ± 240	230 ± 120
(D-53)	February	45 ± 5	1645 ± 165	280 ± 110
Background Station	March	46 ± 5	1640 ± 180	410 ± 80
	April	18 ± 3	1100 ± 200	190 ± 120
	May	21 ± 4	1330 ± 250	450 ± 170
	June	15 ± 3	600 ± 115	250 ± 100

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

TABLE 5.5-2

GROSS BETA, Sr-89 AND Sr-90 ANALYSES OF SOIL SAMPLES

Collection Site	Collection Site	pCi/kg (Dry) Gross Beta	Sr-89	Sr-90
Thorsen Farm	01-11-75	22 ± 3	<2	<1
Davidson Farm	01-11-75	12 ± 3	<2	<1
Rousonellis Truck Farm	01-11-75	13 ± 3	<2	<1
Thorsen Farm	04-05-75	26 ± 2	<2	<1
Davidson Farm	04-05-75	<1	<2	<1
Rousonellis Truck Farm	04-05-75	6 ± 1	<2	<1

TRITIUM IN SOIL SAMPLES

D-39 Behind GE Simulator

Collection Date	HTO (pCi/l)
03-01-75	<.4
06-07-75	<.4

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

TABLE 5.7-1

GROSS BETA AND TRITIUM IN WELL WATER SAMPLES

Collection Site	Collection Date	Gross Beta (pCi/l)	Tritium (pCi/l)
Dresden Well #1 (D-24) Indicator Station	01-04-75	14 ± 6	<120
	04-05-75	28 ± 5	<130
Dresden Well #2 (D-25) Indicator Station	02-01-75	20 ± 5	<120
	05-03-75	33 ± 5	<120
Thorsen Farm (D-27) Indicator Station	01-04-75	6 ± 3	340 ± 110
	04-05-75	8 ± 3	230 ± 130
MFRP Well (D-38) Indicator Station	03-01-75	<4	<120
	06-07-75	36 ± 5	< 90
Bennitt Farm (D-09) Indicator Station	01-04-75	15 ± 10	(a)
	04-05-75	24 ± 8	
Hansel (D-10) Background Station	01-04-75	14 ± 5	(a)
	04-05-75	6 ± 3	
Breen (D-12) Background Station	02-01-75	9 ± 5	(a)
	05-03-75	10 ± 4	
Dresden Lock & Dam (D-23) Indicator Station	01-04-75	18 ± 4	(a)
	02-01-75	18 ± 4	
	03-01-75	14 ± 4	
	04-05-75	19 ± 4	
	05-03-75	20 ± 4	
	06-07-75	22 ± 4	
Drinking Fountain-Unit #1 (D-26)	02-01-75	28 ± 6	(a)
	05-03-75	29 ± 5	
Anderson Farm (D-28) Indicator Station	02-01-75	5 ± 5	(a)
	05-03-75	18 ± 5	
Olson Farm (D-29) Background Station	02-01-75	19 ± 5	(a)
	05-03-75	12 ± 4	

(a) Analyses 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.

TABLE 5.8-1

GAMMA ISOTOPIC ANALYSES OF GRASS

SPECIAL COLLECTION

02-01-75

Sample: Location:	Grass Davidson Farm	Grass Phillips Farm	Grass Mather Farm
Nuclides:	pCi/gm		
I -131	<0.1	<0.01	<0.01
Be- 7	12 ± 7	17 ± 4	19 ± 3
Cs-137	<1	<1	<1
Zr- 95	<1	<1	1 ± 1
Nb- 95	2 ± 1	3 ± 1	<1
K - 40	<5	<3	5 ± 3
Ce-144	11 ± 5	18 ± 4	11 ± 3
All Others	<1	<1	<1

GROSS BETA IN SOIL AND GRASS

SPECIAL COLLECTION

02-01-75

Sample: Location:	Soil Davidson	Soil Phillips	Grass Davidson	Grass Phillips	Grass Mather
	pCi/gm				
Gross Beta	33 ± 3	2 ± 0.3	22 ± 2	40 ± 4	20 ± 2

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

TABLE 5.8-2

Radionuclides in Grass Samples Collected 03/16/75

Location	pCi/gm as received		
	Gross Beta	Gamma Emitters*	
Davidson Farm (D-30)	44 ± 4	Ce-144	11 ± 2
		Cs-137	0.5 ± 0.2
		Zr- 95	0.7 ± 0.5
		Nb- 95	1.8 ± 0.3
Phillips Farm (D-48)	30 ± 3	Ce-144	11 ± 3
		Cs-137	1.0 ± 0.2
		Zr- 95	2.0 ± 0.5
		Nb- 95	3.0 ± 0.4
Mather Farm (D-53)	19 ± 2	Ce-144	9.0 ± 1.0
		Cs-137	0.6 ± 0.2
		Zr- 95	2.0 ± 0.4
		Nb- 95	3.0 ± 0.3

Radionuclides in Soil Samples Collected 03/16/75

Location	pCi/g as received		
	Gross Beta	Gamma Emitters*	
Davidson Farm (D-30)	4 ± 1	ND	
Rousonellis Farm (D-49)	4 ± 1	Cs-137	0.3 ± 0.2
Glasscock Farm (D-50)	4 ± 1	Cs-137	1.0 ± 0.3
Girot Farm (D-51)	2 ± 1	Cs-137	0.3 ± 0.2
Pogliano Farm (D-52)	3 ± 1	ND	

*ND = Not detected at system sensitivity (3σ) of at least 1 pCi/gm for the following nuclides: Ce-144, Cr-51, I-131, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Individual nuclides are listed when detected. Naturally occurring gamma emitters such as K-40, Be-7 and radium daughters may have been detected, but not reported here.

TABLE 5 & 3

GROSS BETA, RADIOSTRONTIUM AND GAMMA ISOTOPIC
ANALYSES OF SOIL SAMPLES
Collected 29 March 1975

Lab No.	Location	pCi/g Gross Beta	Sr-89	Sr-90	Gamma Isotopic*
M0979	Davidson Farm D-30	5 ± 1	<2	<1	ND
M0980	Rousonellis Truck Farm D-49	3 ± 1	<2	<1	ND
M0981	Glasscock Truck Farm D-50	4 ± 1	<2	<1	ND
M0982	Girot Truck Farm D-51	1 ± 1	<2	<1	ND
M0983	Pogliano Truck Farm D-52	<1	<2	<1	ND

GROSS BETA, RADIOSTRONTIUM AND GAMMA ISOTOPIC
ANALYSES OF CATTLEFEED SAMPLES
Collected 29 March 1975

Lab No.	Sample Type	Location	pCi/g Gross Beta	Sr-89	Sr-90	Gamma Isotopic*
M0970	Gr. Corn & Silage	Davidson Farm D-30	8 ± 1	<2	<1	ND
M0971	Gr. Corn	Phillips Farm D-48	4 ± 1	<2	<1	ND
M0972	Gr. Corn & Silage	Mather Farm D-53	4 ± 1	<2	<1	ND
M0973	Hay	Davidson Farm D-30	30 ± 3	<2	<1	ND
M0974	Hay	Phillips Farm D-48	23 ± 2	<2	<1	ND
M0975	Hay	Mather Farm D-53	25 ± 2	<2	<1	ND
M0976	Grass	Davidson Farm D-30	32 ± 3	<2	<1	Ce-144 4 ± 1
M0977	Grass	Phillips Farm D-48	24 ± 2	<2	<1	Ce-144 9 ± 2, Nb-95 1.5 ± .5
M0978	Grass	Mather Farm D-53	36 ± 4	<2	<1	Ce-144 7 ± 3, Zr-95 2 ± .5, Nb-95 2 ± .5

*ND = not detected at system sensitivity. Gamma spectrum is computer scanned from ~25 to >2000 KeV. Routine sensitvities for I-131, Ba-La-140, Cs-134, Zr-95, Cs-137, Co-58, Co-60, Mn-54, Zn-65 is <1 pCi/gm. Data reported as "<" are at the 3σ level, other error terms are 2σ.

TABLE 5.8-4

SPECIAL COLLECTION

Strontium-89 and Strontium-90
in Soil Samples Collected
29 March 1975

Lab No.	Location	Collection Date	pCi/g (3σ) Sr-89	Sr-90
M0979	Davidson Farm D-30	03-29-75	<1	<1
M0980	Rousonellis Farm D-49	03-29-75	<1	<1
M0981	Glasscock Farm D-50	03-29-75	<1	<1
M0982	Girot Truck Farm D-51	03-29-75	<1	<1
M0983	Pogliano Truck Farm D-52	03-29-75	<1	<1

TABLE 5.8-5

Airborne I-131, and Gross Beta in Air Particulate Filters - Special Collection of 5/28/75

Location	Volume (m^3)	pCi/m^3	
		Gross Beta	I-131†
D-07	115	0.10 ± 0.01	<0.03
D-08	175	0.07 ± 0.01	<0.03
D-11	175	0.09 ± 0.01	<0.03
D-14	175	0.09 ± 0.01	<0.03
D-44	161	0.11 ± 0.01	<0.03
D-09	175	0.09 ± 0.01	<0.03
D-15	175	0.10 ± 0.01	<0.03
D-47	175	0.10 ± 0.01	<0.03

†Corrected for decay to 5/28/75.

Gamma Isotopic, Gross Beta, Sr-89, and Sr-90 Analyses of Grass and Cattlefeed Samples Collected 5/28/75

Location	Sample Type	pCi/gm (as received)			
		Gross Beta	Gamma Isotopic*	Sr-89	Sr-90
D-07	Grass	30 ± 3	<1	<2	<1
D-09	Grass	25 ± 3	<1	<2	<1
D-11	Grass	26 ± 3	<1	<2	<1
D-30	Grass	26 ± 3	<1	<2	<1
D-48	Grass	31 ± 1	<1	<2	<1
D-53	Grass	27 ± 1	<1	<2	<1
D-30	Ground Corn	8 ± 1	<1	<2	<1
D-48	Ground Corn	4 ± 1	<1	<2	<1
D-53	Ground Corn	4 ± 1	<1	<2	<1

*The spectrum is computer scanned from ~20 to ~2000 KeV. Data listed as "<" are at the 3σ level. Specifically included in the gamma analyses are Ce-144, Cr-51, Ba-La-140, Cs-134, Cs-137, Zr-Nb-90, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are not included.

TABLE 5.8-5 (Cont'd)

Sr-89 and Sr-90 in Samples from Special Collection of 5/28/75

Lab No.	Sample Type	Sample No.	Collection Date	pCi/g (Dry) Sr-89	Sr-90
M2840	Soil	D-09	05-28-75	<2	<1
2841	Soil	D-30	"	<2	<1
2842	Soil	D-48	"	<2	<1
2843	Soil	D-53	"	<2	<1
2844	Grass	D-07	"	<2	<1
2845	Grass	D-09	"	<2	<1
2846	Grass	D-11	"	<2	<1
2847	Grass	D-30	"	<2	<1
2848	Grass	D-48	"	<2	<1
2849	Grass	D-53	"	<2	<1
2850	Gr. Corn	D-30	"	<2	<1
2851	Gr. Corn	D-48	"	<2	<1
2852	Gr. Corn	D-53	"	<2	<1

TABLE 5.8-6

Data for the Special Collection of Soil and Grass on 07 June 1975 are reported in Tables 5.4-3 and 5.4-4.

TABLE 5.8-7

MAY 1975

Gamma Isotopic Analyses (GeLi) of Soil Samples from DNPS

Sample No.	pCi/g (±2σ) as received				
	Cs-134	Cs-137	Co-60	Others*	Unidentified Peaks
1	<1	4 ± 1	2 ± 1	<1	511, 795 KeV
2	<1	1 ± 1	<1	<1	-
3	1 ± 1	5 ± 1	9 ± 2	<1	-
4	<1	2 ± 1	6 ± 2	<1	795 KeV
5	1 ± 1	5 ± 1	11 ± 2	<1	-
6	<1†	3 ± 1	5 ± 1	<1	-
7	1 ± 1	6 ± 1	10 ± 1	<1	-
8	<1	1 ± 1	2 ± 1	<1	-
9	<1	2 ± 1	2 ± 1	<1	-
10	<1	2 ± 1	1 ± 1	<1	797, 911, 971 KeV
11	7 ± 1	24 ± 2	33 ± 1	Mn-54=2±1	-

TABLE 5.8-8

JUNE 1975

Gamma Isotopic Analyses (GeLi) of Soil Samples from DNPS

Lab No.	Sample No.	pCi/g (as received)				
		Cs-134	Cs-137	Mn-54	Co-60	Other*
M4092	1	<1	6 ± 1	<1	4 ± 1	<1
4093	2	<1	1 ± 1	1 ± 1	1 ± 1	<1
4094	3	<1	2 ± 1	<1	3 ± 1	<1
4095	4	<1	2 ± 1	<1	4 ± 1	<1
4096	5	<1	4 ± 1	<1	15 ± 2	<1
4097	6	<1	2 ± 1	<1	6 ± 1	<1
4098	7	<1	4 ± 1	<1	7 ± 1	<1
4099	8	<1	3 ± 1	<1	5 ± 1	<1
4100	9	<1	1 ± 1	<1	2 ± 1	<1
4101	10	<1	1 ± 1	<1	2 ± 1	<1
4102	11	6 ± 1	17 ± 1	2 ± 1	25 ± 2	<1
4103	12	10 ± 1	32 ± 2	1 ± 1	50 ± 3	<1
4104	13	<1	1 ± 1	<1	1 ± 1	<1
4105	14	<1	1 ± 1	<1	<1	<1
4106	15	<1	<1	<1	<1	<1
4107	16	<1	<1	<1	<1	<1

† Trace

* The spectrum is computer scanned from -20 to -2000 KeV. Data listed as "<" is at the 3σ level, others are 2σ. Specifically included in the gamma analyses are Ce-144, Cr-51, 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 not included.

TABLE 5.8-9

Radioactivity in Surface Water Composite Samples

Station Number	Sampling Location	Collection Date	pCi/l (±2σ) Gross Beta	Gross Alpha	Gamma Isotopic	*I-1
D-19	Inlet	5/3-5/10	11 ± 4	1 ± 1	<10	<4
D-20-1	Discharge-1	" "	10 ± 4	<1	<10	<4
D-20-2/3	" 2/3	" "	17 ± 4	<1	<10	<4
D-21	EJ&E RR Bridge	5/10	11 ± 4	1 ± 1	<10	<4
D-19	Inlet Canal	5/9-5/11	6 ± 5	<1	<10	<4
D-19	" "	5/12	9 ± 5	<1	<10	<4
D-19	" "	5/13	5 ± 5	<1	<10	<4
D-19	" "	5/14	5 ± 4	<1	<10	<4
D-19	" "	5/15	8 ± 5	<1	<10	<4
D-19	" "	5/16	11 ± 5	<1	<10	<4

*The spectrum is computer scanned from ~20 to ~2000 KeV. Data listed as "<" is at 3σ level. Specifically included in the gamma analyses are Ce-144, Cr-51, Ba-La-190, 134 Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such a K-40 and Ra daughters are not included.

TABLE 10

Radionuclides in Samples from D-1 Inlet Canal

Sample	Date	Gross Beta	HTO	filterable pCi/l (±2σ) Cs-134	Cs-137	Zr-95	Nb-95	Mn-54	Co-60	Others*
Inlet (Comp)	5/3-5/10	11 ± 4	NA	<10	<10	<10	<10	<10	<10	<10
Inlet (Comp)	5/9-5/11	6 ± 5	"	<10	<10	<10	<10	<10	<10	<10
Inlet	5/12	9 ± 5	"	<10	<10	<10	<10	<10	<10	<10
Inlet	5/13	5 ± 5	"	<10	<10	<10	<10	<10	<10	<10
Inlet	5/14	5 ± 5	"	<10	<10	<10	<10	<10	<10	<10
Inlet	5/15	8 ± 5	"	<10	<10	<10	<10	<10	<10	<10
Inlet	5/16	11 ± 5	"	<10	<10	<10	<10	<10	<10	<10
Inlet	5/17	NA	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	5/18	NA	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	5/18-5/24			< 5						
Inlet (Comp)	5/24-5/31	2000 ± 200	2700 ± 300	850	1240	< 5	< 5	17	110	< 5
Inlet (Comp)	5/31-6/7		NA	390	550	28	32	80	340	< 5
Inlet (Comp)	6/7-6/14	270 ± 30	"	510	733	18	< 5	25	130	< 5
Inlet	6/10	NA	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/11	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/12	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/13	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/14	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/15	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/16	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/17	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/18	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet	6/19	"	"	< 8	< 8	< 8	< 8	< 8	< 8	< 8
Inlet (Comp)	6/19	"	"	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Crib House	6/19	"	"	< 5	7 ± 5	< 5	< 5	< 5	< 5	< 5
River Grab	6/19	"	"	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Down by River	6/20	"	"	< 5	5 ± 5	< 5	< 5	< 5	< 5	< 5
Crib House	6/20	"	"	< 5	< 5	< 5	< 5	< 5	< 5	< 5

NA = Not Analyzed

* The spectrum is computer scanned from ~20 to ~2000 KeV. Data listed as "<" are at the 3σ level, others are 2σ. Specifically included in the gamma analyses are Ce-144, Cr-51, 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.

Gamma Isotopic Analyses of Core (Soil) Samples from Boreholes
Made in the Unit #1 Rad Waste Area, DNPS, on 09 June 1975

Lab No.	Depth (ft)	Sample No.	Nuclides* (pCi/gm as received) Cs-134	Cs-137	Co-58	Co-60	Others	
				BORE #1				
M4108	Surface	A	47 ± 3	158 ± 5	<1	230 ± 7	3 ± 1	Mn-54
3504	2	S 1	†	5.9 ±1.5	<1	3.0 ±0.5	<1	
3505	4-5	S 2	1.2 ±0.3	3.4 ±0.8	<1	6.0 ±1.5	<1	
3506	6	S 3	<1	<1	1.0 ±0.5	1.4 ±0.5	<1	
3507	8	S 4	<1	<1	<1	<1	<1	
3508	11	S 5	<1	<1	<1	<1	<1	
3509	13-14	S 6	<1	<1	<1	<1	<1	
3510	15-16	S 7	<1	<1	<1	<1	<1	
3511	18	S 8	<1	<1	<1	<1	<1	
3512	21	S 9	†	†	<1	1.6 ±0.7	<1	
3513	23-24	S10	<1	<1	<1	<1	<1	
3514	25-26	S11	<1	<1	<1	1.3 ±0.6	<1	
3515	28-29	S12	<1	<1	<1	<1	<1	
3516	30-31	S13	<1	<1	<1	<1	<1	
3517	34-35	S14	<1	<1	<1	<1	<1	
				BORE #2				
M4109	Surface	B	110 ± 4	339 ± 8	<1	590 ± 13	14 ± 2	Mn-54
3518	2	S 1	<1	<1	<1	<1	<1	
3519	4-5	S 2	2.0 ±0.5	12 ± 2	<1	18 ± 3	<1	
3520	6	S 3	†	4.5 ±1.0	<1	4.5 ±1.0	<1	
3521	8	S 4	<1	0.7 ±0.5	<1	<1	<1	
3522	10-11	S 5	<1	<1	<1	<1	<1	
3523	13	S 6	<1	1.1 ±0.3	<1	<1	<1	
3524	16	S 7	<1	<1	<1	<1	<1	
3525	18-19	S 8	<1	<1	<1	<1	<1	
3526	21	S 9	5.1 ±1.2	13 ± 2	<1	4.4 ±1.0	<1	
3527	23-24	S10	4.0 ±1.0	17 ± 4	<1	5.3 ±1.2	<1	
3528	25-26	S11	<1	<1	<1	<1	<1	
3530	31	S13	<1	<1	<1	<1	<1	
3531	34-35	S14	<1	<1	<1	<1	<1	
				BORE #3				
M4110	Surface	C	100 ± 3	300 ± 7	<1	620 ± 11	11 ± 1	Mn-54
3532	2	S 1	7.2 ±1.5	96 ± 15	<1	68 ± 10	<1	
3533	4-5	S 2	<1	6.7 ±1.6	<1	20 ± 4	<1	
3534	5-6	S 3	2.3 ±0.5	8.9 ±1.2	<1	27 ± 4	<1	
3535	8	S 4	<1	1.5 ±0.5	<1	6.6 ±1.3	<1	
3536	10-11	S 5	1.8 ±0.6	3.6 ±0.6	<1	3.5 ±0.6	<1	
3537	13	S 6	<1	<1	<1	<1	<1	
3539	18-19	S 8	<1	<1	<1	<1	<1	
3540	20-21	S 9	<1	<1	<1	1 ± 1	<1	
3541	23-24	S10	<1	<1	<1	<1	<1	
3542	25-26	S11	<1	<1	<1	<1	<1	
3543	28	S12	<1	<1	<1	<1	<1	
3544	30-31	S13	<1	<1	<1	<1	<1	
3545	34-35	S14	<1	<1	<1	<1	<1	

†Detected at <1 pCi/gm but not quantified.
* The spectrum is computer scanned from ~20 to ~2000 KeV. Data listed as "<" are at the 3σ level, others are 2σ. Specifically included in the gamma analyses are Ce-144, Cr-51, 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.

APPENDIX II

METEOROLOGICAL DATA

(Hours of Occurrence)

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
STABILITY CLASS - EXTREMELY UNSTABLE (DELTA T 150-35
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	4	3	1	0	8
NNE	0	0	1	4	0	0	5
NE	1	1	4	0	0	0	6
ENE	0	3	3	0	0	0	6
E	0	1	1	2	2	3	9
ESE	0	1	6	1	0	0	8
SE	0	1	3	1	0	0	5
SSE	0	0	0	0	0	0	0
S	0	0	1	1	0	0	2
SSW	0	0	1	0	3	1	5
SW	0	1	2	2	6	2	[illegible]
WSW	0	1	3	2	0	0	6
W	0	6	8	6	15	7	42
WNW	0	2	4	10	2	0	18
NW	0	0	2	16	6	0	24
NNW	0	4	0	5	2	0	11
VARIABLE	0	0	0	0	0	0	0
TOTAL	1	21	43	53	37	13	168

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 20

NO. OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
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	1	1	0	0	3
NNE	0	0	1	0	0	0	1
NE	0	1	1	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	4	0	0	2	6
ESE	0	2	0	1	0	0	3
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	1	2	0	0	0	3
SSW	0	1	0	2	1	0	4
SW	0	0	0	1	0	0	1
WSW	0	0	3	0	0	0	3
W	0	3	3	1	2	0	9
WNW	0	0	4	4	1	0	9
NW	0	1	1	3	1	0	6
NNW	0	1	0	2	0	0	3
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	11	21	15	5	2	54

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 7

OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
STABILITY CLASS - SLIGHTLY UNSTABLE (DELTA T 150-35
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	2	0	0	0	3
NNE	0	0	2	0	0	0	2
NE	0	3	0	0	0	0	3
ENE	0	1	0	0	0	0	1
E	0	1	3	1	0	0	5
ESE	0	1	2	0	1	0	4
SE	0	1	2	1	0	0	4
SSE	0	0	0	0	0	0	0
S	0	0	3	2	0	0	5
SSW	0	0	1	1	0	0	2
SW	0	1	0	1	0	1	3
WSW	0	1	1	1	0	0	3
W	0	2	4	4	1	1	12
WNW	0	0	2	1	1	0	4
NW	0	0	0	2	0	0	2
NNW	0	0	0	1	0	0	1
VARIABLE	0	0	0	0	0	0	0
TOTAL	0	12	22	15	3	2	54

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 7

NO. OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
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	11	23	7	0	0	42
NNE	3	10	12	5	0	0	30
NE	5	25	8	1	0	0	39
ENE	1	29	14	6	0	0	50
E	1	25	40	15	12	0	93
ESE	1	9	17	2	5	0	34
SE	0	9	18	16	1	0	44
SSE	2	6	6	21	9	0	44
S	0	14	15	26	2	0	57
SSW	1	4	7	8	4	1	25
SW	1	4	13	5	7	9	39
WSW	0	4	8	10	13	2	37
W	0	9	43	31	31	11	125
WNW	0	5	26	22	13	1	67
NW	2	6	18	35	4	0	65
NNW	2	10	27	13	2	0	54
VARIABLE	6	0	0	0	0	0	6
TOTAL	26	180	295	223	103	24	851

PERIODS OF CALM (HOURS) - 2
HOURS OF MISSING DATA - 178

). OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
STABILITY CLASS - SLIGHTLY STABLE (DELTA T 150-35
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	10	8	1	0	0	21
NNE	1	10	8	6	1	0	26
NE	6	17	4	2	2	0	31
ENE	2	15	3	1	0	0	21
E	0	24	26	5	0	0	55
ESE	0	13	11	7	1	0	32
SE	0	6	14	5	2	0	27
SSE	2	14	13	10	9	2	50
S	1	21	20	16	11	2	71
SSW	2	12	7	4	4	1	30
SW	5	11	6	4	0	7	
WSW	2	10	8	4	8	0	32
W	3	20	26	12	13	4	78
WNW	3	11	17	16	2	0	49
NW	1	4	14	16	0	0	35
NNW	4	3	5	2	0	0	14
VARIABLE	4	0	0	0	0	0	4
TOTAL	38	201	190	111	53	16	609

PERIODS OF CALM (HOURS) - 1
HOURS OF MISSING DATA - 109

NO. OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
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	0	1	0	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	3	0	0	0	0	3
ENE	0	1	1	0	0	0	2
E	0	2	1	0	0	0	3
ESE	0	1	1	0	0	0	2
SE	0	3	0	0	0	0	3
SSE	0	2	2	0	0	0	4
S	1	11	3	0	0	0	15
SSW	0	8	3	0	0	1	12
SW	1	5	2	0	1	1	10
WSW	1	5	2	0	0	0	8
W	0	1	2	0	0	0	3
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	3	44	17	0	1	2	67

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 16

OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - JANUARY - MARCH 1975
STABILITY CLASS - EXTREMELY STABLE (DELTA T 150-35
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	1	0	0	0	0	0	1
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	1	0	0	0	0	0	1
SSW	2	0	0	0	0	0	2
SW	0	3	0	0	0	0	3
WSW	0	2	0	0	0	0	2
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
VARIABLE	0	0	0	0	0	0	0
TOTAL	4	6	0	0	0	0	10

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 0

NO. OF HOURS WITH MISSING STABILITY CLASS - 7

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
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	0	6	13	4	0	0	23
NNE	0	2	20	11	0	0	33
NE	0	5	22	1	0	0	28
ENE	0	3	14	4	0	0	21
E	0	2	5	11	0	0	18
ESE	0	3	3	11	2	0	19
SE	0	4	9	3	3	0	19
SSE	0	4	0	1	1	0	6
S	0	1	2	7	3	0	13
SSW	0	4	6	4	1	0	15
SW	1	0	5	3	2	0	11
WSW	0	1	3	1	1	2	8
W	1	3	4	0	0	3	11
WNW	0	5	15	5	0	0	25
NW	0	2	19	3	0	0	24
NNW	0	5	10	4	0	0	19
VARIABLE	1	0	0	0	0	0	1
TOTAL	3	50	150	73	13	5	294

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 3

O. OF HOURS WITH MISSING STABILITY CLASS - 25

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
STABILITY CLASS - MODERATELY UNSTABLE (DELTA T 150-35
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	1	1	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	3	2	0	0	0	5
ENE	0	0	2	1	0	0	3
E	0	1	1	5	0	0	7
ESE	0	1	1	1	0	0	3
SE	0	0	3	0	0	0	3
SSE	0	1	0	0	1	0	2
S	0	0	2	0	2	0	4
SSW	0	0	2	2	1	0	5
SW	0	0	1	2	0	0	
WSW	0	0	0	0	1	0	1
W	0	2	0	0	0	2	4
WNW	0	1	4	0	0	0	5
NW	0	0	1	1	0	0	2
NNW	0	0	1	1	0	0	2
VARIABLE	1	0	0	0	0	0	1
TOTAL	1	10	21	14	5	2	53

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 0

NO. OF HOURS WITH MISSING STABILITY CLASS - 25

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
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	1	0	2	1	0	0	4
NNE	0	0	1	0	0	0	1
NE	0	1	1	0	0	0	2
ENE	0	0	2	0	0	0	2
E	0	2	2	2	0	0	6
ESE	0	0	1	2	0	0	3
SE	0	2	1	1	1	0	5
SSE	0	0	1	1	0	0	2
S	0	0	1	0	0	0	1
SSW	0	1	0	1	0	0	2
SW	0	1	1	1	0	0	3
WSW	0	1	0	0	0	0	1
W	0	1	0	0	0	0	1
WNW	0	1	0	0	0	0	1
NW	0	1	3	1	0	0	5
NNW	0	0	0	0	0	0	0
VARIABLE	1	0	0	0	0	0	1
TOTAL	2	11	16	10	1	0	40

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 0

OF HOURS WITH MISSING STABILITY CLASS - 25

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
STABILITY CLASS - NEUTRAL (DELTA T 150-35
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	6	10	0	0	0	16
NNE	1	10	26	6	0	0	43
NE	1	16	32	2	0	0	51
ENE	0	12	36	7	2	0	57
E	0	5	18	26	5	0	54
ESE	0	6	4	15	3	0	28
SE	0	4	5	1	1	0	11
SSE	0	4	1	4	4	1	14
S	1	3	4	5	7	1	21
SSW	0	3	2	3	1	1	10
SW	0	1	2	1	1	0	
WSW	0	0	4	4	0	2	10
W	0	1	2	5	11	1	20
WNW	0	3	6	0	0	0	9
NW	1	2	5	3	0	0	11
NNW	1	2	10	2	0	0	15
VARIABLE	0	0	0	0	0	0	0
TOTAL	5	78	167	84	35	6	375

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 26

NO. OF HOURS WITH MISSING STABILITY CLASS - 25

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
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	2	14	13	0	0	0	29
NNE	2	21	7	0	0	0	30
NE	2	35	3	0	0	0	40
ENE	1	46	14	0	0	0	61
E	2	29	38	3	0	0	72
ESE	2	31	33	4	0	0	70
SE	1	22	14	4	0	1	42
SSE	3	15	9	5	7	0	39
S	3	27	32	14	10	0	86
SSW	2	16	9	19	4	0	50
SW	0	10	21	15	3	1	50
WSW	1	14	18	12	11	1	57
W	0	11	16	3	0	0	30
WNW	1	11	30	8	3	0	53
NW	1	2	10	2	2	0	17
NNW	3	12	8	1	0	0	24
VARIABLE	12	0	0	0	0	0	12
TOTAL	38	316	275	90	40	3	762

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 3

OF HOURS WITH MISSING STABILITY CLASS - 25

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
STABILITY CLASS - MODERATELY STABLE (DELTA T 150-35
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	3	2	0	0	0	6
NNE	1	8	1	0	0	0	10
NE	1	13	0	0	0	0	14
ENE	5	16	2	0	0	0	23
E	2	48	8	0	0	0	58
ESE	4	32	9	0	0	0	45
SE	2	26	19	0	0	0	47
SSE	1	27	15	3	0	0	46
S	6	18	8	0	0	0	32
SSW	5	23	15	4	0	0	47
SW	7	13	15	2	0	0	
WSW	0	11	6	1	0	0	18
W	0	13	5	1	0	0	19
WNW	4	7	6	2	1	0	20
NW	1	16	6	0	0	0	23
NNW	5	16	1	0	0	0	22
VARIABLE	13	0	0	0	0	0	13
TOTAL	58	290	118	13	1	0	480

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 1

NO. OF HOURS WITH MISSING STABILITY CLASS - 25

DRESDEN NUCLEAR POWER STATION
PERIOD OF RECORD - APRIL - JUNE 1975
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	1	0	0	0	0	0	1
NNE	0	2	0	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	2	4	0	0	0	0	6
ESE	3	13	2	0	0	0	18
SE	1	9	1	0	0	0	11
SSE	3	3	0	0	0	0	6
S	4	8	0	0	0	0	12
SSW	3	8	1	0	0	0	12
SW	3	7	6	0	0	0	16
WSW	2	2	2	0	0	0	6
W	1	4	0	0	0	0	5
WNW	1	3	0	0	0	0	4
NW	1	3	0	0	0	0	4
NNW	0	2	0	0	0	0	2
VARIABLE	11	0	0	0	0	0	11
TOTAL	36	69	12	0	0	0	117

PERIODS OF CALM (HOURS) - 0
HOURS OF MISSING DATA - 5

• OF HOURS WITH MISSING STABILITY CLASS - 25

APPENDIX III

A SUMMARY OF PROCEDURES

USED FOR ANALYZING

RADIOACTIVITY IN ENVIRONMENTAL SAMPLES

MARCH 1975

Environmental samples are collected at those locations and with those frequencies specified in the Technical Specifications. The samples are then brought (or shipped) to the contractor's laboratory for analysis by radiochemical methods which are essentially identical to those procedures of the U.S. AEC Health and Safety Laboratory (1) or the U.S. EPA (2, 3), or that procedure for measuring I-131 in milk suggested by the U.S. AEC in Regulatory Guide 4.3 (4). These methods, which are summarily discussed below, achieve the analytical sensitivities listed in the attached table.

Air Samples

The gross beta (or alpha) content of particles filtered from a measured volume of air is determined weekly by "low level" counting of the filters. When a gamma scan is required by the Specifications the filters are usually composited to increase the sensitivity of the analysis on the GeLi detector system.*

Charcoal cartridges exposed at air sampling stations are analyzed weekly or bi-weekly, as the case may be, for I-131. Iodine-131 measurement on these samples is by gamma counting using a 4" x 4" sodium iodide (thallium activated) crystal and a single channel pulse height spectrometer.

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*Except where otherwise noted, a GeLi system is used for making all gamma spectral analyses.

ANALYTICAL DETECTION AND REPORTING CAPABILITY

Sample Medium	Analysis	SENSITIVITY ⊙	
Airborne Particulate	Gross Beta	0.01	pCi/m^3
	Gamma Scan/Isotope	0.01	"
	Gross Alpha	0.005	"
	Iodine-131	0.03	"
Gamma Radiation	TLD	≈20	mrem/year
Liquids	Sr-89	5	pCi/liter
	Sr-90	1	"
	I-131	4*	"
	Cs-134	10	"
	Cs-137	10**	"
	Tritium	200	"
	Beta	1.0	"
	Alpha	0.5	"
Vegetation	Alpha, Beta	1	pCi/g wet
	Sr-89, 80	1	"
	Gamma Scan/Isotope	1	"
Soil Sediment	Alpha, Beta	2	pCi/g dry
	Sr-89, 90	1	"
	Gamma Scan/Isotope	1	"
Fish Tissue	Cs-134, 137	0.1	pCi/g "wet" ▲

* 0.5 pCi/l on milk samples collected during the pasture season.

** 1 pCi/l on milk sample

▲ "wet" weight is an "as received at the laboratory" weight and in some instances the samples exhibit water loss during handling.

⊙ Minimum reported activity at the 99% (3σ) confidence level.

Water Samples

Gross alpha, beta, or gamma spectral analyses of (surface, well, precipitation) water samples are performed by evaporation of a measured aliquot of the sample, digestion, and planchetting of the processed sample, followed by radiometric assay. Tritium analysis is performed on water samples to a sensitivity of 200 pCi/l by isotopic enrichment and liquid scintillation counting.

Strontium-89 and -90 analysis is performed on the samples by standard radiochemical procedures followed by low-level beta counting of total radiostrontium plus Y-90. Then the Y -90 is separated and counted to determine Sr-90. Sr-89 is determined by taking the difference.

Mud, Silt and Soil

After being dried in an oven, samples of mud, silt or soil are analyzed by gamma spectral analysis; much smaller portions are analyzed for their gross beta (or alpha) content.

Strontium-89 and -90 analysis is performed on the samples by standard radiochemical procedures followed by low-level beta counting of total radiostrontium plus Y-90. Then the Y-90 is separated and counted to determine Sr-90. Sr-89 is determined by taking the difference.

Fish

Fish and other samples of aquatic life are analyzed for gross beta, Sr-89, Sr-90 and gamma-emitting radionuclide content by the procedures used by E.P.A. or HASL.

Milk

During the time cows are on pasture, weekly samples of fresh milk are analyzed for radioiodine (as I-131) immediately upon receipt of the samples in laboratory by techniques similar to those specified in Regulatory Guide 4.3. This method provides a sensitivity of 0.5 pCi/l with an overall error of analysis of ±25%. During the remaining period of the year, I-131 is determined by gamma spectral analysis. Other gamma-emitting radionuclides are determined by gamma spectral analysis. Strontium-89 and -90 analyses are made with standard radiochemical techniques followed by beta-counting.

Vegetation

Vegetation samples include food stuffs, field forage crops, grass, cattle feeds and similar media. The samples are analyzed for gross beta and gamma isotopic composition after being dried, wet ashed, and plancheted. Sr-89 and -90 are measured using techniques similar to those used on mud, silt, and soil.

Wildlife

Samples of wildlife, such as waterfowl and rabbits, are collected as scheduled and analyzed by the procedures referred to previously for radiostrontium and the gamma emitters. Usually only an ashed portion of the bone is analyzed for radiostrontium while only the flesh is counted for gross beta and the gamma emitters.

References

(1) HASL Procedures Manual, HASL-300, edited by John H. Harley, Health and Safety Laboratory, U.S. Atomic Energy Commission, 1972 Edition, revised annually.

(2) Radiochemical Procedures for the Analysis of Nuclear Reactor Aqueous Solutions, edited by H. L. Krieger and S. Gold, Environmental Protection Agency, Division of Research, August, 1971.

(3) Radionuclide Analysis of Environmental Samples, A Laboratory Manual of Methodology, edited by H. L. Krieger, Richard J. Velten and Frantz J. Burmann, U.S. Department of Health, Education and Welfare, Division of Radiological Health, revised February 1966.

(4) Regulatory Guide 4.3 Measurements of Radionuclides in the Environment: Analysis of I-131 in Milk, U.S. Atomic Energy Commission, September, 1973.

APPENDIX IV

OCCUPATIONAL PERSONNEL RADIATION EXPOSURES

JANUARY - JUNE 1975

OCCUPATIONAL PERSONNEL RADIATION EXPOSURE : PART 1

STATION **Dresden**

(Per Tech Spec 6.6.A.3.i.)

The following is a tabulation of the number of occupational personnel exposures for plant operations personnel[1], (Permanent and temporary) for the **Jan. - June 1975** reporting period:

Exposure (in Rem)	Number of Individuals	
	Permanent Employees	Temporary Employees
No Measurable Exposure	51	237
Measurable Exposure Less Than .100	41	17
.100 - .250	28	10
.250 - .500	43	20
.500 - .750	53	7
.750 - 1.0	57	6
1.0 - 2.0	146	88
2.0 - 3.0	11	46
3.0 - 4.0	0	0
4.0 - 5.0	0	0
5.0 - 6.0	0	0
6.0 - 7.0	0	0
7.0 - 8.0	0	0
8.0 - 9.0	0	0
9.0 - 10.0	0	0
10.0 - 11.0	0	0
11.0 - 12.0	0	0
12.0 +	0	0

OCCUPATIONAL PERSONNEL RADIATION EXPOSURE:PART 2

STATION **Dresden**

(Per Tech Spec 6.6.A.3.i.)

The numbers of plant operations personnel[1] receiving more than 500 mRem exposure in the reporting period are tabulated below according to duty function:

Duty Function	Number of Individuals	
	Permanent Employees	Temporary Employees
Routine plant surveillance & inspection	49	1
Routine Plant maintenance	127	73
Routine Refueling Operations	20	0
Other	71	73

N/A plant operations personnel[1] received more than 2500 mRem during **N/A**.

1. "Plant operations personnel" is interpreted as excluding visitors, tour groups and contractors.
2. N.A. - Not applicable for the January through June period.