

RADIOLOGICAL IMPACT ASSESSMENT

BROWNS FERRY NUCLEAR PLANT

JULY-DECEMBER 1977

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Introduction

Potential doses to individuals and populations have been calculated for the time period July 1 through December 31, 1977. The calculations have been made using the measured releases listed in Tables 1 and 2 for radioactivity in both gaseous and liquid effluents. Dispersion of radioactive effluents in the environment has been calculated using meteorological data and river flow data measured during this period.

Meteorological Data

Meteorological data were measured, and average quarterly joint frequency distribution (JFD's) for ground-level and stack releases were calculated. The ground-level JFD was derived from wind speeds and directions measured with a sensor located 10 meters above ground level and from the vertical temperature gradient between 10 and 45 meters. The JFD's for elevated releases were based on wind directions and wind speeds measured at 93 meters. Stability class D was assumed to persist at the effluent release level of 183 meters for the entire period. Examination of rawinsonde data from TVA's Colbert Steam Plant (40 miles west of BFNP) indicates that for ΔT -based stabilities at levels above 183 meters, the frequencies of stability classes D and E total more than 95 percent of all occurrences. For an elevated release, assumption of class D instead of E yields conservative results.

The wind speeds were divided into nine wind-speed ranges. For calculational purposes, calms were distributed into the lowest wind speed

range (0-0.5 mph) according to the directional probabilities in the 0.6-1.4 mph range. The quarterly JFD's are listed in Tables 3 and 4 for ground-level releases and in Tables 5 and 6 for elevated releases.


Gaseous Effluents

Ground-level and elevated (stack) dispersion models were used to estimate radioactivity concentrations in the environment. Radionuclides in gaseous effluents were assumed to be released continuously. Dose estimates for external air exposures were made at the site boundary. External doses to the skin and total body were estimated for the nearest residence in each sector. Internal doses to the thyroid were estimated from the ingestion, inhalation, and external exposure pathways. The internal doses were calculated for farms where milk is consumed without commercial preparation. Doses are given in Tables 7 and 8 for these individual exposure pathways at the maximum exposure locations.

Population doses were calculated for an estimated 627,000 persons living within a 50-mile radius of the plant site. Population doses were calculated assuming that each individual consumes vegetables and meat produced within the sector annuli in which he resides. Doses from milk ingestion were calculated from data on milk production within 50 miles of the plant site. Doses from external pathways, inhalation, and beef and vegetable ingestion are based on the 50-mile human population distribution. Population dose estimates for the gaseous effluents are presented in Table 9.

Liquid Effluents

Doses from liquid effluents were calculated using measured hydraulic data. The average river flows at the plant site were 33,800 cfs

for the third quarter and 81,500 cfs for the fourth quarter.  radioactivity concentrations in the Tennessee River were calculated assuming that releases in liquid effluents were continuous.

Doses were calculated for recreation, consumption of fish, and drinking water from public water supplies between the plant site and the mouth of the Tennessee River. The maximum individual dose from drinking water was assumed to be that calculated at the nearest downstream public water supply (Champion Paper Company). The maximum potential recreation dose was calculated for a location immediately downstream from the plant outfall. Dose estimates for the liquid effluents are presented in Tables 10 and 11.

Direct Radiation

Analysis of onsite thermoluminescent dosimetry (TLD) data showed that radioactivity levels were not statistically different from levels at offsite locations. This indicates that there was no identifiable increase in dose rate levels attributable to direct radiation from plant equipment and/or gaseous effluents. Fluctuations in natural background dose rates and in TLD readings tend to mask any small increments which may be due to plant operations.

An experimental program that was being conducted using high-pressure ionization chamber measurements to relate reactor power level to direct radiation dose rates has been cancelled. Because of this cancellation, results of this work will not be used to estimate dose rates at Browns Ferry.

Dose Summary

Doses calculated for this semiannual period result from the low-level effluent releases of units 1, 2, and 3. For gaseous effluents released in the third quarter, the maximum gamma and beta air doses were calculated to be .99 and 5.42 mrad, respectively. During the fourth quarter, the gamma and beta air doses were .52 and 2.63 mrad, respectively. These quarterly doses are well below the annual air dose guidelines (as specified in Appendix I to 10CFR50) of 30 and 60 mrad for gamma and beta radiation, respectively, for three reactor units. (All doses and dose limits referred to will be totals for the three reactor units.) The maximum doses from external sources to the skin and total body during the third quarter were calculated to be 2.02 and .55 mrem. During the fourth quarter, the skin and total body doses were 1.10 and .39 mrem, respectively. These compare with annual dose guidelines of 45 mrem to the skin and 15 mrem to the total body. Internal doses to the maximum exposed organ, i.e., the thyroid, were estimated to be .11 and .10 mrem for the third and fourth quarter. These doses result from the ingestion of milk, meat, and vegetables, inhalation, and from exposures to external sources of radiation.

For liquid effluents released in the third quarter, the maximum individual doses to the total body and the maximum exposed organ, i.e., G.I. tract, were calculated to be 0.02 and 0.03 mrem, respectively. In the fourth quarter, the maximum doses to the total body and G.I. tract were 0.02 and 0.05 mrem, respectively. These compare with annual dose guidelines as specified in Appendix I to 10CFR50 of 9 and 30 mrem to the total body and maximum exposed organ (G.I. tract), respectively, for three units.

Population doses from gaseous effluents during the third quarter were estimated to be .36 man-rem to the total body and .54 man-rem to the thyroid. For the fourth quarter, population doses were .25 man-rem to the total body and .41 man-rem to the thyroid.

From liquid releases during the third quarter, the total population along the Tennessee River was estimated to receive 0.6 man-rem to the total body and 1.2 man-rem to the maximum exposed organ (G.I. tract). For the fourth quarter, the Tennessee River population was estimated to receive 0.6 man-rem to the total body and 2.1 man-rem to the maximum exposed organ (G.I. tract).

In summary, all doses calculated were below the guidelines of Appendix I to 10CFR50 and below the limits specified in the Browns Ferry Nuclear Plant technical specifications for plant operation.

TABLE 1

BNFP GASEOUS EFFLUENT RELEASES

<u>Radionuclide</u>	<u>Ground-Level Releases</u>		<u>Elevated Releases</u>	
	<u>Third Quarter, 1977</u> (Ci)	<u>Fourth Quarter, 1977</u> (Ci)	<u>Third Quarter, 1977</u> (Ci)	<u>Fourth Quarter, 1977</u> (Ci)
H-3	1.00E+1	1.48E+0	2.23E-1	1.56E-1
Ar-41	<1.48E+2	<7.13E+1	2.79E+1	<6.36E+0
Sr-89	<3.91E-5	<2.49E-5	2.15E-5	<6.00E-6
Sr-90	<4.77E-5	<1.27E-5	9.49E-6	<5.62E-7
Kr-85	<2.27E+4	<1.05E+4	<1.08E+2	<1.87E+1
Kr-85m	<8.98E+1	<4.00E+1	2.86E+2	<3.86E+1
Kr-87	<2.28E+2	<1.11E+2	6.80E+1	<2.77E+1
Kr-88	<3.15E+2	<1.43E+2	3.80E+2	<9.25E+1
I-131	5.93E-3	<6.40E-3	<1.78E-3	2.34E-4
I-133	<5.42E-3	<2.74E-3	<5.74E-4	<2.14E-4
I-135	<1.96E-2	<1.89E-2	<8.52E-4	<8.88E-4
Xe-133	<2.22E+2	<1.06E+2	2.49E+3	1.64E+2
Xe-135	<8.75E+1	<3.49E+1	<1.06E+2	<1.52E+2
Xe-135m	<3.97E+2	<1.17E+2	<1.46E+2	<6.06E+1
Xe-138	<1.64E+3	<8.56E+2	<8.20E+2	<3.50E+2
Cs-134	<3.04E-4	<3.65E-4	<1.66E-6	<9.35E-6
Cs-137	<7.25E-4	<1.28E-3	<3.55E-5	<2.63E-5
Ba-140	<5.50E-4	<8.55E-4	<2.84E-5	<2.08E-5
La-140	<5.50E-4	<8.55E-4	<2.84E-5	<2.08E-5
Zr-95	<6.08E-4	<2.24E-3	<3.15E-5	<1.77E-5
Nb-95	<2.90E-4	<3.00E-3	<1.45E-5	<8.14E-6
Co-58	<2.99E-4	<2.80E-3	<1.50E-6	<8.41E-6
Mn-54	<2.79E-4	<2.69E-3	<1.44E-6	<8.66E-6
Zn-65	<7.73E-4	<1.07E-2	<3.76E-5	<2.09E-5
Fe-59	<6.43E-4	<8.06E-4	<3.52E-5	<1.93E-5
Co-60	<5.91E-4	<1.11E-2	<2.55E-6	<1.80E-5

TABLE 2BFNP LIQUID EFFLUENTS RELEASES

<u>Nuclide</u>	<u>Activity (Ci)</u>	
	<u>Third Quarter</u>	<u>Fourth Quarter</u>
H-3	3.5E-0	9.9E-0
Na-24	<2.5E-2	<1.1E-1
Cr-51	3.2E-2	<1.5E-1
Mn-54	<1.6E-3	<1.5E-2
Mn-56	<1.8E-4	<1.1E-3
Fe-59	<1.3E-3	<8.8E-3
Co-58	<2.6E-3	<1.7E-2
Co-60	<7.6E-3	<6.5E-2
Zn-65	<8.6E-3	<8.5E-2
Sr-89	<9.6E-4	4.8E-3
Sr-90	<2.8E-4	<1.3E-3
Zr-95	<2.4E-3	<2.7E-2
Nb-95	<2.4E-3	<2.7E-2
Mo-99	<2.2E-3	<1.2E-2
Tc-99m	<2.2E-3	<1.2E-2
Ag-110m	1.3E-2	4.7E-2
I-131	<4.2E-3	<7.2E-3
I-133	<2.1E-3	<1.9E-2
I-135	0.0	<6.1E-3
Xe-133	<3.8E-3	<1.9E-2
Xe-135	0.0	<2.2E-2
Cs-134	<1.6E-3	<1.1E-2
Cs-136	<1.3E-3	<9.4E-3
Cs-137	<8.0E-3	<3.6E-2
Ba-140	<3.3E-4	<1.5E-3
La-140	<3.3E-4	<1.5E-3
Ce-141	<1.1E-3	<5.0E-3
Totals	<3.7E-0	<1.1E+1

TABLE 3

BROWNS FERRY NUCLEAR PLANT METEOROLOGICAL DATA

JOINT FREQUENCY DISTRIBUTION IN PERCENT

GROUND-LEVEL RELEASES - THIRD QUARTER, 1977

STABILITY CLASS A										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.050	0.050	0.0	0.0	0.0	0.100
NNE	0.0	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.100
NE	0.0	0.0	0.0	0.0	0.150	0.050	0.0	0.0	0.0	0.200
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.050	0.339	0.439	0.100	0.0	0.0	0.0	0.928
SE	0.0	0.0	0.150	3.062	1.167	0.050	0.0	0.0	0.0	4.429
SSE	0.0	0.0	0.100	1.317	0.050	0.0	0.0	0.0	0.0	1.466
S	0.0	0.0	0.0	0.678	0.100	0.0	0.0	0.0	0.0	0.778
SSW	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
SW	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
WSW	0.0	0.0	0.0	0.150	0.0	0.050	0.0	0.0	0.0	0.200
W	0.0	0.0	0.0	0.0	0.0	0.150	0.0	0.0	0.0	0.150
WNW	0.0	0.0	0.0	0.050	0.0	0.050	0.0	0.0	0.0	0.100
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
TOTALS	0.0	0.0	0.299	5.746	2.055	0.499	0.0	0.0	0.0	8.599

STABILITY CLASS B										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.100	0.389	0.289	0.0	0.0	0.0	0.778
NNE	0.0	0.0	0.050	0.100	0.100	0.050	0.0	0.0	0.0	0.299
NE	0.0	0.0	0.0	0.150	0.100	0.050	0.0	0.0	0.0	0.299
ENE	0.0	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.100
E	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
ESE	0.0	0.0	0.0	0.269	0.050	0.0	0.0	0.0	0.0	0.339
SE	0.0	0.0	0.339	1.017	0.150	0.0	0.0	0.0	0.0	1.506
SSE	0.0	0.0	0.100	0.539	0.0	0.0	0.0	0.0	0.0	0.639
S	0.0	0.0	0.050	0.628	0.050	0.0	0.0	0.0	0.0	0.928
SSW	0.0	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.050
SW	0.0	0.0	0.0	0.239	0.0	0.0	0.0	0.0	0.0	0.239
WSW	0.0	0.0	0.0	0.200	0.0	0.0	0.0	0.0	0.0	0.200
W	0.0	0.0	0.0	0.050	0.200	0.150	0.0	0.0	0.0	0.399
WNW	0.0	0.0	0.0	0.100	0.200	0.239	0.050	0.0	0.0	0.589
NW	0.0	0.0	0.0	0.0	0.0	0.150	0.0	0.0	0.0	0.150
NNW	0.0	0.0	0.0	0.0	0.200	0.150	0.0	0.0	0.0	0.349
TOTALS	0.0	0.0	0.539	3.661	1.586	1.077	0.050	0.0	0.0	6.913

TABLE 3 (CONTINUED)

STABILITY CLASS C										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.050	0.200	0.289	0.100	0.0	0.0	0.0	0.638
NNE	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.050
NE	0.0	0.0	0.0	0.050	0.0	0.050	0.0	0.0	0.0	0.100
ENE	0.0	0.0	0.0	0.050	0.050	0.0	0.0	0.0	0.0	0.100
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.200	0.0	0.0	0.0	0.0	0.0	0.200
SE	0.0	0.0	0.289	0.489	0.100	0.0	0.0	0.0	0.0	0.578
SSE	0.0	0.0	0.050	0.100	0.0	0.0	0.0	0.0	0.0	0.150
S	0.0	0.0	0.150	0.339	0.050	0.0	0.0	0.0	0.0	0.539
SSW	0.0	0.0	0.0	0.100	0.0	0.0	0.0	0.0	0.0	0.100
SW	0.0	0.0	0.0	0.239	0.0	0.0	0.0	0.0	0.0	0.269
WSW	0.0	0.0	0.0	0.239	0.100	0.0	0.0	0.0	0.0	0.339
W	0.0	0.0	0.0	0.050	0.150	0.339	0.0	0.0	0.0	0.539
WNW	0.0	0.0	0.0	0.200	0.200	0.050	0.0	0.0	0.0	0.449
NW	0.0	0.0	0.0	0.0	0.239	0.200	0.0	0.0	0.0	0.439
NNW	0.0	0.0	0.0	0.050	0.200	0.050	0.0	0.0	0.0	0.299
TOTALS	0.0	0.0	0.589	2.354	1.377	0.788	0.0	0.0	0.0	5.107

STABILITY CLASS D										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.289	0.200	0.628	0.678	0.150	0.0	0.0	1.945
NNE	0.0	0.0	0.200	0.239	0.339	0.100	0.239	0.0	0.0	1.117
NE	0.0	0.0	0.050	0.289	0.050	0.0	0.0	0.0	0.0	0.389
ENE	0.0	0.0	0.289	0.150	0.0	0.150	0.0	0.0	0.0	0.589
E	0.0	0.0	0.339	0.150	0.0	0.0	0.0	0.0	0.0	0.489
ESE	0.0	0.050	0.389	0.928	0.150	0.100	0.0	0.0	0.0	1.615
SE	0.0	0.100	2.145	2.973	1.556	0.539	0.0	0.0	0.0	7.312
SSE	0.0	0.050	1.456	1.456	0.050	0.050	0.0	0.0	0.0	3.052
S	0.0	0.0	1.995	1.845	0.0	0.0	0.0	0.0	0.0	3.840
SSW	0.0	0.0	1.167	0.239	0.0	0.0	0.0	0.0	0.0	1.407
SW	0.0	0.0	0.389	0.489	0.0	0.0	0.0	0.0	0.0	0.878
WSW	0.0	0.0	0.970	1.895	0.200	0.0	0.0	0.0	0.0	3.072
W	0.0	0.0	0.628	1.416	0.978	0.239	0.0	0.0	0.0	3.262
WNW	0.0	0.0	0.239	0.978	0.339	0.239	0.050	0.0	0.0	1.295
NW	0.0	0.0	0.100	0.439	0.239	0.269	0.0	0.0	0.0	1.117
NNW	0.0	0.0	0.100	0.489	0.439	0.389	0.0	0.0	0.0	1.416
TOTALS	0.0	0.200	10.803	14.175	5.018	2.773	0.439	0.0	0.0	33.407

TABLE 3 (CONTINUED)

STABILITY CLASS E

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.006	0.150	0.389	0.439	0.389	0.239	0.0	0.0	0.0	1.612
NNE	0.004	0.100	0.539	0.878	0.339	0.050	0.200	0.0	0.0	2.109
NE	0.0	0.0	0.628	0.678	0.050	0.050	0.050	0.0	0.0	1.456
ENE	0.006	0.150	0.878	0.389	0.150	0.050	0.0	0.0	0.0	1.622
E	0.004	0.100	1.117	0.928	0.0	0.0	0.0	0.0	0.0	2.149
ESE	0.0	0.0	1.367	1.117	0.200	0.050	0.0	0.0	0.0	2.733
SE	0.006	0.150	3.312	3.022	0.776	0.0	0.0	0.0	0.0	7.268
SSE	0.004	0.100	1.117	0.100	0.100	0.0	0.0	0.0	0.0	1.420
S	0.006	0.150	1.656	0.339	0.0	0.0	0.0	0.0	0.0	2.151
SSW	0.004	0.100	1.067	0.100	0.050	0.0	0.0	0.0	0.0	1.321
SW	0.002	0.050	0.339	0.050	0.0	0.0	0.0	0.0	0.0	0.441
WSW	0.002	0.050	0.828	0.539	0.100	0.0	0.0	0.0	0.0	1.518
W	0.0	0.0	0.728	1.167	0.239	0.100	0.0	0.0	0.0	2.234
WNW	0.002	0.050	0.100	0.050	0.100	0.100	0.0	0.0	0.0	0.401
NW	0.0	0.0	0.200	0.0	0.0	0.0	0.0	0.0	0.0	0.200
NNW	0.006	0.150	0.589	0.289	0.628	0.239	0.0	0.0	0.0	1.901
TOTALS	0.052	1.297	14.853	10.085	3.122	0.878	0.249	0.0	0.0	30.536

STABILITY CLASS F

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.006	0.050	0.389	0.389	0.200	0.0	0.0	0.0	0.0	1.033
NNE	0.012	0.100	0.389	1.167	0.200	0.0	0.0	0.0	0.0	1.867
NE	0.006	0.050	0.339	0.678	0.150	0.0	0.0	0.0	0.0	1.273
ENE	0.0	0.0	0.928	0.200	0.200	0.0	0.0	0.0	0.0	1.227
E	0.0	0.0	0.628	0.589	0.0	0.0	0.0	0.0	0.0	1.217
ESE	0.0	0.0	0.589	0.200	0.0	0.0	0.0	0.0	0.0	0.788
SE	0.006	0.050	0.239	0.100	0.0	0.0	0.0	0.0	0.0	0.395
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.200	0.050	0.0	0.0	0.0	0.0	0.0	0.249
W	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.100	0.050	0.0	0.0	0.0	0.0	0.0	0.150
NNW	0.018	0.150	0.339	0.489	0.050	0.0	0.0	0.0	0.0	1.045
TOTALS	0.048	0.399	4.090	3.960	0.798	0.0	0.0	0.0	0.0	9.295

TABLE 3 (CONTINUED)

STABILITY CLASS G

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.050	1.117	0.100	0.0	0.0	0.0	0.0	0.0	1.267
NNE	0.0	0.150	1.217	0.489	0.050	0.0	0.0	0.0	0.0	1.905
NE	0.0	0.0	0.628	0.239	0.0	0.0	0.0	0.0	0.0	0.866
ENE	0.0	0.050	0.589	0.200	0.0	0.0	0.0	0.0	0.0	0.838
E	0.0	0.050	0.728	0.239	0.0	0.0	0.0	0.0	0.0	1.017
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.100	0.150	0.0	0.0	0.0	0.0	0.0	0.0	0.249
TOTALS	0.0	0.399	4.429	1.267	0.050	0.0	0.0	0.0	0.0	6.145

TABLE 4

BROWNS FERRY NUCLEAR PLANT METEOROLOGICAL DATA

JOINT FREQUENCY DISTRIBUTION IN PERCENT

GROUND-LEVEL RELEASES - FOURTH QUARTER, 1977

STABILITY CLASS A										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.0	0.139	0.050	0.0	0.0	0.189
NNE	0.0	0.0	0.0	0.0	0.0	0.179	0.050	0.0	0.0	0.229
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.090	0.139	0.050	0.0	0.0	0.0	0.279
SE	0.0	0.0	0.0	0.408	0.408	0.0	0.0	0.0	0.0	0.817
SSE	0.0	0.0	0.0	0.269	0.139	0.139	0.0	0.0	0.0	0.548
S	0.0	0.0	0.0	0.179	0.050	0.0	0.0	0.0	0.0	0.229
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.050	0.050	0.0	0.100
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.050	0.0	0.0	0.050
NNW	0.0	0.0	0.0	0.0	0.0	0.050	0.090	0.0	0.0	0.139
TOTALS	0.0	0.0	0.0	0.946	0.737	0.558	0.289	0.050	0.0	2.579

STABILITY CLASS B										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.0	0.408	0.0	0.0	0.0	0.408
NNE	0.0	0.0	0.0	0.0	0.0	0.090	0.050	0.0	0.0	0.139
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.090	0.090	0.0	0.0	0.0	0.0	0.179
SE	0.0	0.0	0.050	0.139	0.090	0.050	0.0	0.0	0.0	0.329
SSE	0.0	0.0	0.0	0.229	0.050	0.0	0.0	0.0	0.0	0.279
S	0.0	0.0	0.0	0.179	0.179	0.050	0.0	0.0	0.0	0.408
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
WSW	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
W	0.0	0.0	0.0	0.0	0.0	0.0	0.139	0.0	0.0	0.139
WNW	0.0	0.0	0.0	0.0	0.0	0.050	0.050	0.0	0.0	0.100
NW	0.0	0.0	0.0	0.0	0.0	0.139	0.495	0.090	0.0	0.727
NNW	0.0	0.0	0.0	0.0	0.0	0.229	0.090	0.050	0.0	0.368
TOTALS	0.0	0.0	0.050	0.737	0.408	1.016	0.827	0.139	0.0	3.177

TABLE 4 (CONTINUED)

STABILITY CLASS C										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.050	0.269	0.0	0.0	0.0	0.319
NNF	0.0	0.0	0.0	0.050	0.050	0.090	0.0	0.0	0.0	0.189
NE	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
ENE	0.0	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.050
E	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
ESE	0.0	0.0	0.0	0.139	0.050	0.0	0.0	0.0	0.0	0.189
SE	0.0	0.0	0.179	0.139	0.090	0.050	0.0	0.0	0.0	0.458
SSE	0.0	0.0	0.0	0.090	0.090	0.050	0.0	0.0	0.0	0.229
S	0.0	0.0	0.0	0.139	0.050	0.050	0.0	0.0	0.0	0.239
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.050
W	0.0	0.0	0.0	0.0	0.0	0.090	0.0	0.0	0.0	0.090
WNW	0.0	0.0	0.0	0.050	0.090	0.179	0.050	0.050	0.0	0.418
NW	0.0	0.0	0.0	0.0	0.0	0.269	0.269	0.090	0.0	0.627
NNW	0.0	0.0	0.0	0.0	0.050	0.179	0.050	0.0	0.0	0.279
TOTALS	0.0	0.0	0.179	0.757	0.568	1.225	0.368	0.139	0.0	3.237

STABILITY CLASS D										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.050	0.229	0.677	0.448	1.315	0.179	0.0	0.0	2.899
NNF	0.0	0.050	0.179	0.139	0.448	1.036	0.090	0.0	0.0	1.992
NE	0.0	0.0	0.269	0.319	0.229	0.548	0.050	0.0	0.0	1.414
ENE	0.0	0.050	0.548	0.448	0.229	0.359	0.050	0.0	0.0	1.683
E	0.0	0.050	0.359	0.269	0.359	0.050	0.0	0.0	0.0	1.086
ESE	0.0	0.0	0.229	0.637	0.359	0.448	0.0	0.0	0.0	1.673
SE	0.0	0.090	0.677	0.637	0.946	0.856	0.0	0.0	0.0	3.207
SSE	0.0	0.0	0.677	0.767	0.229	0.498	0.050	0.0	0.0	2.221
S	0.0	0.0	0.448	0.817	0.319	0.538	0.050	0.050	0.0	2.271
SSW	0.0	0.050	0.139	0.179	0.050	0.0	0.0	0.0	0.0	0.458
SW	0.0	0.0	0.229	0.229	0.179	0.0	0.0	0.0	0.0	0.637
WSW	0.0	0.0	0.229	0.269	0.139	0.139	0.179	0.0	0.0	0.956
W	0.0	0.0	0.050	0.727	0.498	1.036	0.408	0.050	0.0	2.769
WNW	0.0	0.0	0.050	0.319	0.319	1.444	1.763	0.319	0.050	4.262
NW	0.0	0.0	0.090	0.229	0.269	1.036	1.444	0.319	0.050	3.436
NNW	0.0	0.0	0.090	0.448	0.498	1.723	1.265	0.050	0.0	4.073
TOTALS	0.0	0.339	4.492	7.111	5.557	11.124	5.527	0.787	0.100	35.036

TABLE 4 (CONTINUED)

STABILITY CLASS E

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.003	0.050	0.269	0.359	0.319	0.269	0.090	0.0	0.0	1.357
NNE	0.0	0.0	0.498	0.545	0.359	0.408	0.050	0.0	0.0	1.862
NE	0.005	0.090	0.498	0.359	0.319	0.359	0.050	0.0	0.0	1.678
ENE	0.0	0.0	0.359	0.269	0.179	0.229	0.0	0.0	0.0	1.036
E	0.0	0.0	0.319	0.408	0.448	0.139	0.0	0.0	0.0	1.315
ESE	0.003	0.050	0.359	0.767	1.992	0.548	0.0	0.0	0.0	3.718
SE	0.005	0.090	0.906	1.563	1.852	0.677	0.0	0.0	0.0	5.114
SSE	0.003	0.050	0.498	0.996	1.673	0.498	0.090	0.050	0.0	3.657
S	0.0	0.0	0.906	1.056	1.225	1.086	0.817	0.090	0.0	5.209
SSW	0.003	0.050	0.677	0.179	0.090	0.139	0.090	0.0	0.0	1.228
SW	0.0	0.0	0.269	0.0	0.050	0.0	0.0	0.0	0.0	0.319
WSW	0.0	0.0	0.408	0.568	0.090	0.050	0.139	0.0	0.0	1.275
W	0.008	0.139	0.139	0.637	0.588	0.588	0.050	0.0	0.0	2.149
WNW	0.005	0.090	0.229	0.179	0.0	0.359	0.090	0.050	0.0	1.001
NW	0.0	0.0	0.319	0.408	0.179	0.548	0.179	0.139	0.0	1.773
NNW	0.008	0.139	0.269	0.588	0.548	0.856	0.319	0.0	0.0	2.727
TOTALS	0.043	0.747	6.922	8.953	9.909	6.752	1.962	0.329	0.0	35.617

STABILITY CLASS F

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.050	0.229	0.498	0.319	0.0	0.0	0.0	0.0	1.095
NNE	0.0	0.0	0.548	0.448	0.359	0.179	0.0	0.0	0.0	1.534
NE	0.0	0.0	0.229	0.179	0.050	0.0	0.0	0.0	0.0	0.458
ENE	0.0	0.0	0.359	0.229	0.0	0.0	0.0	0.0	0.0	0.588
E	0.0	0.0	0.408	0.548	0.0	0.0	0.0	0.0	0.0	0.956
ESE	0.0	0.0	0.319	0.319	0.0	0.0	0.0	0.0	0.0	0.637
SE	0.0	0.0	0.548	0.359	0.448	0.179	0.0	0.0	0.0	1.534
SSE	0.0	0.090	0.637	0.359	0.139	0.229	0.050	0.0	0.0	1.504
S	0.0	0.0	0.498	0.319	0.229	0.498	0.050	0.0	0.0	1.593
SSW	0.0	0.050	0.090	0.050	0.0	0.0	0.0	0.0	0.0	0.189
SW	0.0	0.0	0.139	0.090	0.0	0.0	0.0	0.0	0.0	0.229
WSW	0.0	0.0	0.090	0.050	0.0	0.0	0.0	0.0	0.0	0.139
W	0.0	0.0	0.050	0.139	0.0	0.0	0.0	0.0	0.0	0.189
WNW	0.0	0.0	0.229	0.090	0.0	0.0	0.0	0.0	0.0	0.319
NW	0.0	0.050	0.050	0.050	0.050	0.0	0.0	0.0	0.0	0.239
NNW	0.0	0.0	0.319	0.179	0.269	0.090	0.0	0.0	0.0	0.856
TOTALS	0.0	0.239	4.741	3.944	1.862	1.175	0.100	0.0	0.0	12.060

TABLE 4 (CONTINUED)

STABILITY CLASS G										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.050	1.036	0.637	0.050	0.0	0.0	0.0	0.0	1.773
NNE	0.0	0.0	0.727	0.548	0.090	0.0	0.0	0.0	0.0	1.364
NE	0.0	0.050	0.269	0.090	0.0	0.0	0.0	0.0	0.0	0.408
ENE	0.0	0.050	0.856	0.090	0.0	0.0	0.0	0.0	0.0	0.995
E	0.0	0.0	0.448	0.637	0.0	0.0	0.0	0.0	0.0	1.085
ESE	0.0	0.0	0.179	0.0	0.0	0.0	0.0	0.0	0.0	0.179
SE	0.0	0.050	0.498	0.050	0.139	0.0	0.0	0.0	0.0	0.737
SSE	0.0	0.0	0.139	0.139	0.229	0.0	0.0	0.0	0.0	0.508
S	0.0	0.0	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.050
SSW	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.050
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.050
NW	0.0	0.090	0.090	0.0	0.0	0.0	0.0	0.0	0.0	0.179
NNW	0.0	0.0	0.319	0.548	0.050	0.0	0.0	0.0	0.0	0.916
TOTALS	0.0	0.339	4.611	2.739	0.608	0.0	0.0	0.0	0.0	8.296

[illegible]

TABLE 5 (CONTINUED)

STABILITY CLASS C

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

STABILITY CLASS D

WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.090	0.280	0.500	0.370	2.020	1.740	0.140	0.090	5.229
NNE	0.0	0.0	0.090	0.180	0.230	1.100	2.150	0.370	0.280	4.409
NE	0.0	0.0	0.090	0.050	0.460	1.470	1.930	0.640	0.090	4.729
ENE	0.0	0.0	0.050	0.230	0.460	1.380	1.510	0.780	0.180	4.589
E	0.0	0.0	0.140	0.370	0.180	0.690	0.500	0.150	0.0	2.060
ESE	0.0	0.0	0.140	0.640	0.320	2.340	1.420	0.090	0.0	4.949
SE	0.0	0.0	0.320	1.700	1.700	5.919	3.989	1.010	0.180	14.617
SSE	0.0	0.0	0.500	2.250	1.830	5.689	3.809	0.500	0.090	14.567
S	0.0	0.0	0.320	1.190	1.610	3.989	3.119	0.180	0.050	10.458
SSW	0.0	0.0	0.320	0.960	0.920	2.290	1.970	0.550	0.0	7.009
SW	0.0	0.0	0.320	1.010	1.150	2.250	1.790	0.0	0.050	6.569
WSW	0.0	0.050	0.140	1.510	1.510	1.790	0.230	0.050	0.0	5.279
W	0.0	0.0	0.140	1.420	1.330	2.020	0.500	0.050	0.0	5.459
WNW	0.0	0.0	0.140	0.460	0.730	1.970	0.280	0.0	0.0	3.579
NW	0.0	0.0	0.090	0.320	0.920	1.330	0.180	0.050	0.0	2.889
NNW	0.0	0.0	0.050	0.280	0.500	1.700	0.780	0.0	0.0	3.309
TOTALS	0.0	0.140	3.129	13.067	14.217	37.943	25.905	4.589	1.010	100.000

TABLE 5 (CONTINUED)

STABILITY CLASS E

[illegible]

STABILITY CLASS F

[illegible]

TABLE 5 (CONTINUED)

STABILITY CLASS G										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GROUND-LEVEL RELEASES = 0.0 PERCENT

ELEVATED RELEASES = 100.0 PERCENT

ELEVATED RELEASES - FOURTH QUARTER, 1977

[illegible]

TABLE 6 (CONTINUED)

STABILITY CLASS C										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

STABILITY CLASS D										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTORS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.270	0.360	0.590	2.221	2.911	0.540	0.0	6.893
NNE	0.0	0.0	0.140	0.090	0.500	2.181	1.911	0.410	0.0	5.232
NE	0.0	0.0	0.0	0.320	0.360	1.501	1.591	0.730	0.0	4.502
ENE	0.0	0.050	0.180	0.450	0.360	0.950	1.411	0.450	0.0	3.652
E	0.0	0.0	0.450	0.660	0.500	0.910	0.540	0.050	0.0	3.131
ESE	0.0	0.0	0.320	0.410	0.410	1.090	2.411	1.721	0.270	6.633
SE	0.0	0.0	0.450	0.800	1.000	2.541	3.091	4.092	0.820	12.675
SSE	0.0	0.0	0.270	0.360	0.590	1.771	2.911	2.131	0.640	8.674
S	0.0	0.0	0.360	0.450	0.450	1.271	3.041	2.411	0.910	8.894
SSW	0.0	0.0	0.180	0.540	0.230	1.271	1.631	0.920	0.820	5.492
SW	0.0	0.0	0.320	0.450	0.540	0.860	1.040	0.450	0.270	4.432
WSW	0.0	0.0	0.140	0.450	0.270	1.231	0.360	0.160	0.320	2.951
W	0.0	0.0	0.090	0.410	0.360	1.681	1.721	0.680	0.590	5.532
WNW	0.0	0.0	0.230	0.450	0.540	1.721	2.091	1.231	0.450	6.713
NW	0.0	0.0	0.230	0.270	0.590	1.271	2.221	1.541	0.910	7.033
NNW	0.0	0.0	0.270	0.230	0.410	1.591	3.271	1.411	0.180	7.363
TOTALS	0.0	0.050	3.902	6.603	7.703	24.060	32.153	19.348	6.183	100.000

TABLE 6 (CONTINUED)

STABILITY CLASS E

[illegible]

STABILITY CLASS F

[illegible]

TABLE 6 (CONTINUED)

STABILITY CLASS G										
WIND SPEEDS IN METERS PER SECOND FROM THE SECTIONS INDICATED										
SECTOR	0.13	0.45	1.10	1.99	2.80	4.45	6.91	9.59	13.00	TOTALS
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

GROUND-LEVEL RELEASES = 0.0 PERCENT

ELEVATED RELEASES = 100.0 PERCENT

TABLE 7

BFNP DOSES TO INDIVIDUALS FROM THIRD QUARTER, 1977 RELEASES

External Exposure

<u>Pathway</u>	<u>Guideline</u> [*]	<u>Point</u>	<u>Doses (mrem)</u>
γ air dose	30	Max. Exp. ¹	9.88E-1
β air dose	60	Max. Exp. ¹	5.42E+0
Total body	15	Residence ²	5.52E-1
Skin	45	Residence ²	2.02E+0

Internal Exposure (Thyroid-maximum exposed organ)

Radioiodines & Particulates	45	Real Pathway ^{3,4}	1.07E-1
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Breakdown of Internal Exposures (mrem)

	<u>Infant</u>	<u>Child</u>	<u>Adult</u>
Milk Ingestion ³	5.70E-2	2.37E-2	8.00E-3
Meat Ingestion ⁴	0.00E 0	1.18E-3	1.28E-3
Veg. Ingestion ³	0.00E 0	4.40E-3	3.00E-3
Inhalation ³	6.48E-4	1.07E-3	6.58E-4
External ³	4.95E-2	4.95E-2	4.95E-2
Total	1.07E-1	7.98E-2	6.24E-2

* Guidelines as defined by Appendix I to 10CFR50.

1. Maximum exposure point is at 1,550 meters in the N sector.
2. Residence is at 1,740 meters in the N sector.
3. Doses calculated at the residence on the farm which has the limiting milk cow, 5,940 meters, N sector.
4. Doses calculated at the site boundary.

TABLE 8

BFNP DOSES TO INDIVIDUALS FROM FOURTH QUARTER, 1977 RELEASESExternal Exposure

<u>Pathway</u>	<u>Guideline</u> [*]	<u>Point</u>	<u>Doses (mrem)</u>
γ air dose	30	Max. Exp. ¹	5.18E-1
β air dose	60	Max. Exp. ¹	2.63E+0
Total body.	15	Residence ²	3.86E-1
Skin	45	Residence ²	1.10E+0

Internal Exposure (Thyroid-maximum exposed organ)

Radioiodines & Particulates	45	Real Pathway ^{3,4}	1.01E-1
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Breakdown of Internal Exposures (mrem)

	<u>Infant</u>	<u>Child</u>	<u>Adult</u>
Milk Ingestion ³	6.05E-2	2.51E-2	8.45E-3
Meat Ingestion ⁴	0.00E 0	1.09E-3	1.07E-3
Veg. Ingestion ³	0.00E 0	4.50E-3	3.06E-3
Inhalation ³	6.25E-4	1.01E-3	6.22E-4
External ³	3.99E-2	3.99E-2	3.99E-2
Total	1.01E-1	7.16E-2	5.31E-2

* Guidelines as defined by Appendix I to 10CFR50.

1. Maximum exposure point is at 1,620 meters in the NNW sector.

2. Residence is at 1,740 meters in the N sector.

3. Doses calculated at the residence on the farm which has the limiting milk cow, 5,940 meters, N sector.

4. Doses calculated at the site boundary.

TABLE 9

BFNP POPULATION DOSES - THIRD QUARTER 1977

	INFANT	CHILD	THYROID TEEN	ADULT	TOTALS	INFANT	CHILD	TOTAL BODY TEEN	ADULT	TOTALS
SUBMERSION	1.12E-02	6.97E-02	4.44E-02	2.06E-01	3.31E-01	1.12E-02	6.97E-02	4.44E-02	2.06E-01	3.31E-01
GROUND	6.66E-04	4.15E-03	2.64E-03	1.22E-02	1.97E-02	6.66E-04	4.15E-03	2.64E-03	1.22E-02	1.97E-02
INHALATION	7.29E-04	7.56E-03	2.91E-03	1.31E-02	2.43E-02	3.76E-05	6.07E-04	2.95E-04	5.40E-03	6.34E-03
COW MILK	2.07E-02	5.38E-02	1.43E-02	5.74E-02	1.46E-01	2.20E-04	9.56E-04	3.82E-04	2.19E-03	3.75E-03
BEEF INGESTION	0.0	1.17E-03	5.15E-04	3.58E-03	5.26E-03	0.0	1.96E-04	1.10E-04	1.04E-03	1.34E-03
VEG INGESTION	0.0	2.95E-03	1.28E-03	7.93E-03	1.22E-02	0.0	2.32E-04	1.40E-04	1.05E-03	1.43E-03
TOTAL MAN-REM	3.33E-02	1.39E-01	6.60E-02	3.00E-01	5.39E-01	1.21E-02	7.59E-02	4.80E-02	2.28E-01	3.63E-01

FOURTH QUARTER 1977

	INFANT	CHILD	THYROID TEEN	ADULT	TOTALS	INFANT	CHILD	TOTAL BODY TEEN	ADULT	TOTALS
SUBMERSION	5.43E-03	3.38E-02	2.15E-02	9.98E-02	1.61E-01	5.43E-03	3.38E-02	2.15E-02	9.98E-02	1.61E-01
GROUND	2.91E-03	1.81E-02	1.15E-02	5.35E-02	8.61E-02	2.91E-03	1.81E-02	1.15E-02	5.35E-02	8.61E-02
INHALATION	6.36E-04	6.44E-03	2.46E-03	1.10E-02	2.05E-02	6.85E-06	1.11E-04	5.75E-05	2.33E-03	2.51E-03
COW MILK	1.82E-02	4.70E-02	1.25E-02	4.98E-02	1.28E-01	1.15E-04	5.64E-04	2.89E-04	1.71E-03	2.68E-03
BEEF INGESTION	0.0	1.05E-03	4.47E-04	2.91E-03	4.40E-03	0.0	1.63E-04	8.37E-05	6.45E-04	8.92E-04
VEG INGESTION	0.0	2.91E-03	1.25E-03	7.63E-03	1.18E-02	0.0	1.42E-04	8.90E-05	6.77E-04	9.08E-04
TOTAL MAN-REM	2.72E-02	1.09E-01	4.97E-02	2.25E-01	4.11E-01	8.46E-03	5.30E-02	3.36E-02	1.59E-01	2.54E-01

TABLE 10

LIQUID EFFLUENT DOSES - THIRD QUARTER 1977

	<u>Bone</u>	<u>G. I. Tract</u>	<u>Thyroid</u>	<u>Total Body</u>	<u>Skin</u>
I. Water Ingestion					
A. Maximum Individual Dose Champion Paper Company	<5.4E-4	<4.7E-4	<9.5E-4	<2.1E-4	<2.1E-4 mrem
B. Total Population Dose Tennessee River	<1.3E-2	<9.8E-3	<8.2E-3	<5.1E-3	<5.1E-3 man-rem
II. Fish Consumption					
A. Maximum Individual Dose Wheeler Lake Below Browns Ferry	<9.3E-3	<2.3E-2	<1.2E-2	<1.0E-2	<1.0E-2 mrem
B. Total Population Dose Tennessee River	<4.7E-1	<1.1E-0	<5.5E-1	<5.0E-1	<5.0E-1 man-rem
	<u>In-Water</u>		<u>Above-Water</u>		<u>Shoreline</u>
	<u>Total Body</u>	<u>Skin</u>	<u>Total Body</u>	<u>Skin</u>	<u>Total Body</u> <u>Skin</u>
III. Recreation					
A. Maximum Individual Dose Wheeler Lake below Browns Ferry	<1.2E-4	<2.5E-4	<1.2E-4	<2.5E-4	<9.2E-3 <1.1E-2 mrem
B. Total Population Dose Tennessee River	<1.4E-4	<3.0E-4	<3.7E-4	<7.8E-4	<6.2E-2 <7.3E-2 man-rem
	<u>Bone</u>	<u>G.I. Tract</u>	<u>Thyroid</u>	<u>Total Body</u>	<u>Skin</u>
IV. Total Tennessee River Population Dose	<5.5E-1	<1.2E-0	<6.2E-1	<5.7E-1	<5.8E-1 man-rem

TABLE 11

LIQUID EFFLUENT DOSES - FOURTH QUARTER 1977

	<u>Bone</u>	<u>G. I. Tract</u>	<u>Thyroid</u>	<u>Total Body</u>	<u>Skin</u>	
I. Water Ingestion						
A. Maximum Individual Dose Champion Paper Company	<1.0E-3	<1.1E-3	<1.2E-3	<4.0E-4	<4.0E-4 mrem	
B. Total Population Dose Tennessee River	<2.2E-2	<2.1E-2	<1.4E-2	<8.5E-3	<8.5E-3 man-rem	
II. Fish Consumption						
A. Maximum Individual Dose Wheeler Lake Below Browns Ferry	<9.2E-3	<4.1E-2	<1.2E-2	<1.1E-2	<1.1E-2 mrem	
B. Total Population Dose Tennessee River	<4.4E-1	<2.0E-0	<5.4E-1	<5.1E-1	<5.1E-1 man-rem	
	<u>In-Water</u>	<u>Above-Water</u>		<u>Shoreline</u>		
	<u>Total Body</u> . <u>Skin</u>	<u>Total Body</u>	<u>Skin</u>	<u>Total Body</u>	<u>Skin</u>	
III. Recreation						
A. Maximum Individual Dose Wheeler Lake below Browns Ferry	<1.0E-4	<2.2E-4	<1.0E-4	<2.2E-4	<9.7E-3	<1.1E-2 mrem
B. Total Population Dose Tennessee River	<1.5E-4	<3.1E-4	<3.8E-4	<8.1E-4	<6.0E-2	<7.1E-2 man-rem
	<u>Bone</u>	<u>G.I. Tract</u>	<u>Thyroid</u>	<u>Total Body</u>	<u>Skin</u>	
IV. Total Tennessee River Population Dose	<5.2E-1	<2.1E-0	<6.2E-1	<5.8E-1	<5.9E-1	man-rem

