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C. Ferrell, Accident Analysis Branch, DSE

METEOROLOGICAL DATA

Below are the relative concentrations (X/Q) for various time periods for use in your evaluation of short-term accidental releases from Three Mile Island - Unit 2. Data inputted into these dispersion estimates were collected onsite from October 7, 1972 through October 6, 1973 and November 8, 1974 through November 7, 1975. A ground level release with a building wake factor, CA , of $1000m^2$ was assumed. We have modified the dispersion model described in Regulatory Guide 1.4 to include credit for lateral plume meander during stable atmospheric conditions (Pasquill types E, F, and G) accompanied by light wind speeds (i.e. less than 2.5 mph) with no building wake mixing under these light wind, stable atmospheric conditions. The dispersion model also considered the exclusion distance as a function of direction from the plant, the atmospheric diffusion conditions when the wind is blowing in a specific direction, and the fraction of time the wind can be expected to blow in any direction.

To accommodate uncertainties resulting from less than 80% data recovery, a 20% uncertainty factor was incorporated in the staff's dispersion estimates. The limiting relative concentration (X/Q) for the 0-2 hour time period following an accidental release, equivalent to that expected to be exceeded no more than 5% of the time at the exclusion distance, was calculated to be $1.1 \times 10^{-3} \text{ sec}/m^3$, including the 20% uncertainty factor. This value occurred in both the northeast and east-northeast directions from the plant at site boundary distances of 630 and 610 meters, respectively. The relative concentrations, including the uncertainty factor, at the outer boundary of the low population zone distance (3218 meters) for the various time periods following an accidental release to the atmosphere are:

<u>Time Period</u>	<u>X/Q sec/m³</u>
0-8 hours	1.1×10^{-4}
8-24 hours	6.7×10^{-5}
1-4 days	2.5×10^{-5}
4-30 days	6.0×10^{-6}

Joseph R. Lewis
 Earl H. Markee, Jr., Leader
 Hydrology-Meteorology Branch
 Division of Site Safety and
 Environmental Analysis

for

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cc: W. Gammill
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