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JAN 15 1982

MEMORANDUM FOR: J. Philip Stohr, Acting Director
Division of Emergency Preparedness and Operational Support
Region II

FROM: R. Wayne Houston, Assistant Director
for Radiation Protection
Division of Systems Integration

SUBJECT: METEOROLOGICAL ASSESSMENT OF THE NFS ERWIN FUEL FABRICATION FACILITY

As a result of your request we have calculated quarterly, semi-annual and annual X/Q and D/Q values for the NFS Erwin Fuel Fabrication Facility (see attachments). Two years (10/1/79 - 9/30/81) of onsite wind speed and wind direction data were used for the calculations. However, since atmospheric stability was not available from the site, stability had to be factored into the wind speed and direction distribution. This was done based on data from the Watts Bar site located about 100 miles to the west-southwest of NFS. The computer program used for the calculations was XOQDOQ which is based on a straight-line Guassian dispersion equation (NUREG-0324, August 1977). Values were determined for both a ground level and an elevated release.

The values calculated with XOQDOQ took into account the spatial and temporal variations in airflow that are found in a valley situation. This was done by increasing all values in the north-northwest direction (downvalley) by a factor of five, and the values in the upvalley directions of southwest by 1.5, south-southwest by 1.5 out to 5½ miles and south by 1.5 out to 1.0 miles.

Values were calculated at 250 m in the SE and SSE directions, 300 m in the east and south directions, 350 m in the ENE direction, and for all directions at 0.25, 0.5, 0.75, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9 and 10 miles. The stack height used for elevated releases was 16.2 m with an exit velocity of 13 m/s, a building height of 7.6 m and a stack diameter of 2.5 m. The minimum cross-sectional area of the building was calculated to be 581 m.

The delay in meeting the requested date for this information was due to the fact that no atmospheric stability data was available and it had to be factored in subjectively.

Original Signed by
R. Wayne Houston

R. Wayne Houston, Assistant Director
for Radiation Protection
Division of Systems Integration

Enclosure:
As stated

OFFICE	DSI:AEB	DSI:AEB	DSI:AD/RP				
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DATE	1/13/82	1/13/82	1/13/82				

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