

From: Thomas Alexion
To: N. Kaly Kalyanam
Date: 1/14/04 11:00AM
Subject: LETA BROWN'S RAI

Kaly,

See the attached.

— Sent to Waterford 3.

Tom

Docket 90-382

MC 1355

1

WATERFORD 3 - EXTENDED POWER UPRATE (TAC MC1355)
METEOROLOGICAL DATA AND ATMOSPHERIC DISPERSION CALCULATIONS
REQUEST FOR ADDITIONAL INFORMATION

The following preliminary questions are based upon information provided in or referenced by Section 2.13.0.5, "Radiological Consequences Calculation," Attachment 5 of the November 13, 2003, letter in support of a license amendment request related to an extended power uprate. If information associated with the following questions is provided in other parts of this submittal or was previously provided on the docket and still applies, please cite appropriate references. Similarly, if the NRC has previously approved any of the following used in the dose assessment, such as relative concentration (X/Q) values or credit for dual control room intakes, provide reference citations of the approvals.

1. Provide an electronic copy of the hourly meteorological data used to calculate the control room atmospheric dispersion factors as well as the joint frequency distributions used in the PAVAN calculations. The hourly data should be provided either in the format specified in Appendix A to Section 2.7, "Meteorology and Air Quality," of NUREG-1555, "Environmental Standard Review Plan," or in the ARCON96 format described in NUREG/CR-6331, "Atmospheric Relative Concentrations in Building Wakes." Data may be provided in compressed form, but a method to decompress the data should be provided. What are the heights at which the data were measured? What wind measurement heights were provided as input to the dispersion analyses? Was stability class determined as a function of delta-temperature? If so, which delta-temperature measurement heights were used and how were these measurements converted to stability class (e.g., converted to °C/100 meters for comparison to Regulatory Guide 1.23 criteria)? What are the units of wind speed (e.g., miles per hour, meters per second). In generating the hourly meteorological files used as input to ARCON96, did the valid wind direction values range from 1° to 360° and were invalid data designated by completely filling the field for that parameter with 9's? Page 2.13-12 states that data were obtained from "each of the meteorological towers." Which towers were used to provide what data and how were the data combined in the hourly data files and in the joint frequency distributions used to make the relative concentration (X/Q) calculations?
2. For control room X/Q calculations, provide a figure or figures showing the assumed locations of release and control room intakes with respect to the overall plant layout. Provide a quantitative list of all inputs used in estimating the postulated transport of effluent from each of the release locations to the intakes. A copy of the ARCON96 printouts is acceptable to show inputs. Was the physical height of the release location assumed or was an effective release height used in any calculation? If flow rates were assumed when making X/Q calculations, were they based on Technical Specification values? If more than one release to the environment or more than one transport scenario could occur (e.g., loss of offsite power and non-loss of site power, single failure), were comparative X/Q calculations made to ensure consideration of the limiting dose?

X/Q values have been calculated for two intakes. Were the X/Q values used in the dose assessment based upon the more limiting release and intake pair, upon a weighted average (e.g., as described in Regulatory Guide 1.194, "Atmospheric Relative

2

Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants"), or some other criteria? If weighted values were used, describe how estimates were calculated, including inflow rates of each intake and any reduction factors (e.g., due to automatic selection of the least contaminated outside air intake). Provide justification for the use of any reduction factors. If applicable, are control room air intake inflow rates based upon measured values? Confirm that each of the control room intakes meet applicable design criteria of an engineered safeguards feature, including single-failure criterion, missile protection, seismic criteria, and operability technical specifications to merit reduction credit as dual intakes.

3. Provide a list of all inputs and assumptions used in the PAVAN calculations. A copy of the summary pages of the PAVAN outputs is acceptable to show inputs.