

September 5, 2000

MEMORANDUM TO: Gordon E. Edison, Senior Project Manager
Project Directorate 2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Mark Reinhart, Chief/*RA*/
Licensing Section
Probabilistic Safety Assessment Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR PROPOSED
TECHNICAL SPECIFICATION CHANGES IMPLEMENTING
ALTERNATIVE SOURCE TERM FOR SURRY POWER STATION,
UNITS 1 AND 2 (TAC NOS.: MA8649 AND MA8650)

In order to complete our review and evaluation of the above subject technical specification change request, we need the following additional information:

1. Provide the radiological dose calculations you performed to estimate radiation doses at exclusion area boundary and low-population zone, and in the control room for the postulated loss-of-coolant accident and fuel-handling accident.
2. The staff issued Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design-Basis Accidents at Nuclear Power Reactors" in July 2000. This guide provides, among other things, guidance on the assumptions and methods to be used in the design-basis accident radiological consequence analyses in conjunction with new acceptance dose criteria. State if you made any exception or deviation from the guidance provided in this regulatory guide.
3. In Table 1.3-1 of your submittal, you assumed 10 cfm unfiltered air inleakage into the control room. Discuss your control room habitability design including air inleakage test performed to verify the assumed unfiltered air inleakage into the control room.
4. Confirm that, overall, the meteorological data used in the assessment are of high quality and suitable for use in the assessment of atmospheric dispersion to which it was applied. For example, during the periods of data collection did the measurement program meet the guidelines of Regulatory Guide 1.23, "Onsite Meteorological Programs," including factors such as maintaining good siting, instruments within specifications, and adequate data

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recovery and quality assurance checks? If deviations occurred, describe such deviations from Regulatory Guide 1.23 guidance and why the data are still deemed to be adequate. What types of quality assurance checks were performed on the meteorological measurement systems prior to and during the periods of collection to assure that the data are of high quality? Were calibrations properly performed and instruments found to be within guideline specifications for the use of the data? What additional checks and at what frequency were the checks performed on the data following collection and prior to input into the atmospheric dispersion calculations to assure identifying any problems in a timely manner and flagging data of questionable quality?

5. A preliminary staff review of the 1992 through 1996 meteorological data and comparison with data from the 1970's and 1980's indicates some apparent inconsistencies with respect to wind speed, wind direction, and atmospheric stability. During the 1992 through 1996 time period, there appear to have been some intermittent measurements of very or extremely unstable lapse rates during the night and very or extremely stable lapse rates during the day when, typically, neutral or stable lapse rates are expected to occur at night and neutral or unstable conditions during the day. Further, a comparison of wind speed and direction during 1992 through 1996 with the older data indicates a slight shift in wind direction and a general decrease in wind speed during the more recent time period. Do you agree with these observations? If so, to what is this attributed? During the periods of data collection, was the tower base area on the natural surface (e.g., short natural vegetation) and tower free from obstructions (e.g., trees, structures) and micro-scale influences to ensure that the data were representative of the overall site area?
6. Provide, on the docket, an electronic copy of the meteorological data used to calculate the X/Q values. Data should be provided either in the format specified in Appendix A to Section 2.7, "Meteorology and Air Quality," of draft 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 a compressed form, but a method to decompress the data should be provided. If the ARCON96 format is selected when providing data, the atmospheric stability categorization should be based on the delta-T methodology. Any missing data should be designated by completely filling the field for that parameter with 9's.
7. Which of the X/Qs are new for this amendment request and which have been previously approved by the NRC? Why were different periods of data used for control room and off-site X/Q calculations? Describe the specific inputs and assumptions used, including a list of the inputs used in the PAVAN and ARCON96 calculations. A copy of the computer printout pages showing the inputs is acceptable. If modifications were made to either of the codes when making this assessment, describe the modifications and resultant impact. When making estimates using ARCON96, was the physical height of the vent or other release location assumed? Are distances the shortest distance from the postulated release location to the intake location? Figures showing structures, dimensions, and distances may also be helpful in describing the postulated transport of the effluent. 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/transport scenario could occur (e.g., loss of offsite power and non-loss of site power), were comparative X/Q calculations made to ensure consideration of the limiting dose?

8. The April 11, 2000 VEPCO letter makes mention of requirements for equipment hatch, personnel airlock and penetrations having a direct release to the environment. Were separate X/Q values calculated for the two cases, closed penetrations and open penetrations? Page 26 of the enclosure to the letter mentions "wake effects" when using ARCON96. Is this in reference to using the diffuse release option of ARCON96? Also, on page 26 it is stated that the exclusion area boundary and LPZ X/Q values are modeled assuming releases from the Unit 1 containment building. Are these the most limiting conditions for the site?

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