

May 17, 2004

MEMORANDUM TO: John A. Nakoski, Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: Stephen Monarque, Project Manager, Section 1  
Project Directorate II */RA/*  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

SUBJECT: NORTH ANNA POWER STATION, UNITS 1 AND 2 - FACSIMILE  
TRANSMISSION OF REQUEST FOR ADDITIONAL INFORMATION ON  
PROPOSED TECHNICAL SPECIFICATION CHANGES TO IMPLEMENT  
ALTERNATE SOURCE TERM (TAC NOS. MC0776 AND MC0777)

A facsimile of the attached questions was transmitted on April 28, 2004, to Mr. Tom Shaub of Virginia Electric and Power Company (VEPCO). These questions will be discussed in a conference call with the licensee at a future date concerning the licensee's proposed license amendment dated September 12, 2003. This memorandum and the attached questions do not convey or represent an NRC staff position regarding the licensee's request.

Docket Nos. 50-338 and 50-339

Attachment: Request for Additional Information

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**REQUEST FOR ADDITIONAL INFORMATION**  
**NORTH ANNA POWER STATION, UNITS 1 AND 2**  
**PROPOSED IMPLEMENTATION OF ALTERNATIVE SOURCE TERM**

In its letter dated September 12, 2003 (ML032670821), Virginia Electric and Power Company (the licensee) proposed a license amendment and corresponding technical specification (TS) changes based on the application of an Alternative Radiological Source Term (AST) methodology for North Anna Power Station, Units 1 and 2. In order to complete its review, the NRC staff has requested that the licensee provide a response to the questions listed below.

**Meteorological Data**

1. With respect to atmospheric stability, during the five year period between 1997 and 2001, some conditions were reported with a higher variability or occurrence than expected at a typical site. For example, stability class A was reported to occur approximately 4 percent of the time in 1998 and 21 percent of the time in 2001. In addition, there were about 25 occurrences of extremely unstable (class A) conditions for periods longer than 12 consecutive hours during the five year period. The longest occurrence was 59 hours. Also, during several years, there appear to be some intermittent measurements of very unstable lapse rates (A and B stability classes) during the night and very stable lapse rates (F and G stability classes) during the day. Typically, neutral or stable lapse rates occur at night and neutral or unstable conditions during the day. Did the licensee observe such occurrences in their review of the data? If so, to what is this attributed?
2. During 1997 through 2001, there appears to be a low occurrence of winds from roughly the south southeast direction in comparison to the 1974 through 1987 wind patterns in the North Anna Updated Final Safety Analysis Report. To what is this attributed?

**EAB and LPZ Relative Concentration (X/Q) Estimates**

3. Attachment 1 of the September 12, 2003 submittal states that the exclusion area boundary (EAB) and low population zone (LPZ) X/Q values used in the dose assessment are part of the existing design basis. When were these values previously approved by the NRC staff?

**Control Room X/Q Estimates**

4. Attachment 1 of the November 20, 2003 submittal provides X/Q calculations for approximately 119 source/receptor pairs. On page 20 it is stated that the largest applicable X/Q values are used in the dose assessment. This is easy to discern when comparing some of the X/Q values in Table 4 (e.g., the power operated relief valve estimates), but is not quite as clear for some of the other sources. What determines which source/receptor locations are assumed, when the various intakes are open, and how quickly the intakes are assumed to be opened or closed? For example, Table 3.1-4 in Attachment 1 of the September 12, 2003 submittal lists seven source/receptor pairs, but only three pairs were used in the dose assessment. Only one of the three chosen were among the group of three having the highest X/Q values. Which X/Q values are used for unfiltered inleakage for each of the postulated accidents?
5. Under circumstances where more than one release scenario to the environment could occur for a postulated design basis accident (e.g., due to single failure or loss of offsite power), were the more limiting atmospheric dispersion factors used in the dose calculations?