April 25, 2000

MEMORANDUM FOR: File Center

FROM: S. Patrick Sekerak, Project Manager, Section 1***/RA/***
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation (NRR)

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 (GGNS); ELECTRONIC TRANSMISSION OF QUESTIONS FOR DISCUSSION IN A TELEPHONE CONFERENCE RE: GGNS ALTERNATE SOURCE TERM LICENSE AMENDMENT REQUEST (TAC NO. MA8065)

The attached questions were prepared by the NRR Probabilistic Safety Assessment Branch, and electronically transmitted to Mr. Jerry Roberts of Entergy Operations, Inc. on April 18, 2000 in preparation for a telephone conference. The primary purpose of the teleconference is the determination of a mutually agreeable date for response to the questions.

This memorandum and the attachment do not convey a formal request for information or represent an NRC staff position. Formal questions will be sent to the licensee in the form of a Request for Additional Information after the telephone conference to determine a reasonable response date.

Docket Nos. 50-416

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REQUEST FOR ADDITIONAL INFORMATION
GRAND GULF LICENSE AMENDMENT REQUEST FOR
FULL-SCOPE APPLICATION OF ALTERNATIVE SOURCE TERM
(TAC NO. MA8065)

In order to complete our review and evaluation of the subject license amendment request, the Nuclear Regulatory Commission staff requests the following additional information:

1. You have proposed that the maximum allowable main steam isolation valve (MSIV) leak rate be increased to less than or equal to 100 standard cubic feet per hour (scfh) per main steam line with a total leak rate through all four main steam lines of less than or equal to 250 scfh. In the current Grand Gulf updated final safety analysis report (UFSAR), Section 6.7, you stated that the air blower in the outboard MSIV leakage control system (LCS) is rated at 100 standard cubic feet per minute (scfm) and the MSIV-LCS adds about 50 scfm to the standby gas treatment system (SGTS). Reevaluate the MSIV-LCS design and operation to ensure that the existing MSIV-LCS is capable of processing 250 scfh leak rate through the SGTS.

2. In the UFSAR Section 6.7, you stated that the MSIV-LCS adds approximately 100 lbs of steam to the auxiliary building volume served by the SGTS. Reevaluate the SGTS to ensure that the existing SGTS design and operation are capable of processing additional steam resulting from higher MSIV leak rate you proposed without affecting aerosol and iodine removal efficiencies. The staff assumes that the MSIV-LCS releases are routed directly to the SGTS air intake.

3. You have proposed that the maximum allowable unfiltered air in-leakage into the control room be increased to 1200 cubic feet per minute (cfm) from the current limit of 580 cfm. The staff is currently participating in a NRC-industry initiative to resolve generic issues related to control room habitability, in particular, the validity of control room unfiltered air infiltration rates assumed by licensees in their control room habitability assessment. Meanwhile, the staff will consider the proposed unfiltered air in-leakage rate into the control room for review of this amendment request which may be completed prior to the resolution of the control room habitability generic issues. However, the review and approval of this amendment does not exempt Grand Gulf from regulatory actions that may be implemented in the future as generic issues are resolved. State your adherence to the NRC-industry initiative effort.

4. The staff issued draft regulatory guide DG-1081, “Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors,” for public comment. This draft 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 accident dose criteria. State if you made any exceptions or deviations from the guidance provided in this draft regulatory guide.

5. You assumed the engineered safety features (ESF) system leakage to begin at 10 minutes after the accident (or 8 minutes after the beginning of the gap release) and a total leakage rate from the full complement of ESF systems during its recirculation phase to be 2.32 E5 cubic centimeter per hour (cc/hr). Provide the bases for this assumption. State

how this requirement is monitored during plant operation and what action(s) are required if the leakage exceeds this limit.

6. Cesium iodine, entered into the primary containment after a postulated design basis accident, will dissolve in the suppression pool water forming iodide in solution. The radiation-induced conversion of iodide in the suppression pool water into elemental iodine is strongly dependent on pH. In NUREG-1465, the staff stated that if credit is to be given for long-term retention of iodine in the suppression pool, maintenance of the suppression pool water pH at or above a level of 7 must be demonstrated. Describe the capability of your post-accident sampling system to monitor or analyze long-term suppression pool water pH during late-phase of the postulated design-basis accident (DBA).

7. Discuss in detail the capability of and potential use of the standby liquid control system (SLCS) for controlling and maintaining long-term suppression pool water pH levels to 7 or above if needed during late-phase of the postulated DBA.

8. State if it is amenable to include the potential use of the SLCS for controlling and maintaining long-term suppression pool water pH levels in the Grand Gulf accident management procedure as a accident mitigation strategy to minimize on-site and off-site radioactivity releases following the postulated DBA.

9. Discuss any other alternative accident mitigation strategies to ensure the control and maintenance of long-term suppression pool water pH levels; such as use of the condensate storage tank by adding pH control chemicals directly to the tank after the postulated DBA, and making it available to the reactor vessel injection systems.

10. The radiological consequence doses for three release pathways are shown in Table 7-1, Summary of TRANSACT Results, of Attachment 5 of your January 21, 2000 submittal. Show the dose contributions from each release pathway (ESF, MSIV, and containment leakages) for the exclusion area boundary.

11. Provide an overall evaluation of the quality of the meteorological data used in your January 21, 2000 submittal. Did the meteorological program meet the guidelines of Regulatory Guide 1.23, “Onsite Meteorological Programs,” during this period? If there were deviations, describe why the data were still deemed to be adequate for use in the analyses. The intent of this question is to assess the overall quality of the meteorological data. A detailed review of each individual data point is not expected.

12. We have performed a preliminary review of the 1992 to 1996 data. The review suggests a noticeable increase in wind speed and frequency of occurrence of neutral and slightly stable conditions in 1994 and joint data recovery of less than 90 percent during calendar years 1994 through 1996. We are attempting to determine if these observations reflect a change in meteorological conditions and data recovery or are an artifact of data collection, processing, analysis, etc. Based on any year-to-year comparisons that you have performed, does it appear that there was noticeable variability among calendar years 1992 through 1996? Were significant changes implemented, for example, in the measurement program; in instrumentation, calibration or exposure; or in data recording and storage between 1992 and 1996? In particular, were changes implemented during what appears to be an outage in the April 1994 time frame?

13. Provide an electronic copy of the meteorological data used to calculate the X/Q values. If there are no changes in the calendar year 1992 through 1996 data previously provided, then it is acceptable to provide only any additional data used in the analysis, pending resolution of the issue in Question 12. 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." Note that the calendar year 1992 through 1996 data provided previously was in a format similar to but requiring some modification to put it into the NUREG-1555 format. If the ARCON96 format is selected when providing data, the atmospheric stability categorization should be based on the delta-T methodology. Data may be provided in a compressed form, but a method to decompress the data should be provided.

14. Provide a list of the inputs used in the PAVAN and ARCON96 calculations. A copy of the computer printout pages showing the inputs is acceptable.

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