From: Wang, Alan
Sent: Wednesday, January 26, 2011 11:46 AM
To: MILLAR, DANA; Jerry Burford
Cc: Lent, Susan; Burkhardt, Janet
Subject: GGNS EPU Instrument and Control Request for Additional Information (ME4679)

Jerry and Dana,

By letter dated September 8, 2010 (Agencywide Documents Access and Management System, Accession No. ML1002660403), Entergy Operations, Inc. (Entergy, the licensee), submitted a request to amend the Facility Operating License No. NPF-29 for Grand Gulf Nuclear Station, Unit 1 (GGNS). The licensee proposed a license amendment request (LAR) for an extended power uprate (EPU) to increase the maximum reactor core power operating limit from 3898 megawatts thermal (MWt) to 4408 MWt.

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that the following additional information is needed for the NRC staff to complete our review of this amendment . This request for additional information (RAI) was discussed with Mr. Jerry Burford of your staff on January 26, 2011, and it was agreed that a response would be provided within 30 days of receipt of this E-mail. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-1445 or via e-mail at Alan.Wang@nrc.gov.

The following RAIs are related to the instrument and control portion of your request:

(1) In Section 2.4.1 of Attachment 5B of the GGNS EPU LAR, the following statement is made: "The EPU evaluation considered the new [POWER RANGE NEUTRON MONITORING SYSTEM (PRNMS)] system design and licensing basis." Section 2.4.1.1.1 states: "The SRM, IRM, and APRM systems installed at GGNS are in accordance with the requirements established by the GEH design specifications." Also, Table 2.4-2 in Attachment 5B of the GGNS EPU LAR does not list the modification to the analog Average Power Range Monitor (APRM) subsystem; this table only lists the change to the APRM flow-biased STP scram/rod block.

Please clarify that the information provided in Attachment 5 of the LAR uses the new PRNMS system to replace the existing analog APRM subsystem of the existing Neutron Monitoring System (NMS), and not the currently installed analog APRM.

(2) Section 2.4.1.1 of Attachment 5B of the GGNS EPU LAR does not describe the Oscillation Power Range Monitor (OPRM) capability in the PRNMS system. Also, Table 2.4-1 in Attachment 5B of the GGNS EPU LAR summarizes Technical Specification (TS) changes between the current and EPU. This table does not list the OPRM upscale function.

Please provide a description or reference for the OPRM in the PRNMS LAR.

(3) Section 2.4.1.1.1 of Attachment 5B of the GGNS EPU LAR states that the APRM and Local Power Range Monitor (LPRM) meet all NEDC-33044 (commonly called CLTR), "Constant Pressure Power Uprate," dispositions. In support of this request, please

clarify how the APRM and LPRM meet GEH specifications, and therefore, meet the CLTR dispositions.

(4) Section 2.4.1.3 of Attachment 5B of the GGNS EPU LAR describes that the new PRNM and the modification to the HP turbine to account for the EPU will affect several setpoint functions. Section 2.4.2 provides a sample calculation for the MSL High Flow Isolation. But this information is not provided for the other functions affected by the EPU. To support the NRC staff assessment of the acceptability of the LAR in regard to setpoint changes, please provide the calculations for establishing the setpoint values for those functions to be modified by the EPU, identified in Table 2.4-1of Attachment 5B of the GGNS EPU LAR. Specifically, the calculations should be provided for the following functions:

- APRM High Flux Scram (AV)
- APRM Flow-biased Scram (TLO and SLO AV)
- Rod Control and Information System (RCIS) Rod Pattern Controller LPSP (lower bound)

(5) Attachment 5B Sections 2.4.1.3.2 and 2.4.1.3.4 of the GGNS EPU LAR states that new Allowable Values (AV) for the following setpoints are required to support achieving the EPU RTP.

- Turbine First-Stage Pressure Scram Bypass Permissive and
- RCIS Rod Pattern Controller Low Power Setpoint.

Also, Attachment 5B Sections 2.4.1.3.5 of the GGNS EPU LAR states that new Analytical Limit (AL) for the RCIS Rod Withdrawal Limiter High Power Setpoint is required to support achieving the EPU RTP. However, these values are not provided in the LAR, and Entergy stated that they would be revised prior to EPU implementation. Please confirm that it is appropriate for these values to be included in the Technical Requirement Manual (TRM) and not in the TS per 10 CFR 50.36.

(6) Attachment 5B Section 2.4.1.3.7 of the GGNS EPU LAR states that the remaining margin for the steam line pressure sensor is adequate for operation at EPU conditions. In support of this request, please provide a reference to the margin assessment performed to determine that the sensor is adequate.

(7) Table 2.4-2 in Attachment 5B of the GGNS EPU LAR does not list RCIS rod pattern controller low-power setpoint (LPSP). According to Section 2.4.1.3.4, Entergy will scale the lower bound of this function to maintain the AL value in terms of absolute power. In support of this request, please clarify why this change is not listed in Table 2.4-2.

(8) Section 4.1.10 in Attachment 1 of the GGNS EPU LAR identifies actions and Surveillance Requirements (SR) modified to support the EPU. The value for Action K is modified to 21% RTP. The LAR states that this change is based on TS changes identified in the PRNMS LAR. However, the modifications in the PRNMS LAR describe new condition K to be 24% RTP, but it does not explain why the change is required to be 5% less than the OPRM trip enabled region (i.e., 29% current licensed thermal power (CLTP) boundary). In support of this request, please provide a reference or description for how the 5% limit was determined.

Alan Wang

Project Manager (Grand Gulf Nuclear Station)

Nuclear Regulatory Commission

Division of Operating Reactor Licensing