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GNRO-2015/00066

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U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

SUBJECT: Supplemental Response to Bulletin 88-04, Potential Safety-Related Pump Loss  
Grand Gulf Nuclear Station, Unit 1  
Docket No. 50-416  
License No. NPF-29

REFERENCES: 1. Bulletin 88-04, Potential Safety-Related Pump Loss, Dated May 5, 1988  
2. Letter: AECM-88/0158, Potential Safety-Related Pump Loss

Dear Sir or Madam:

Entergy Operations, Inc. (Entergy), based on concerns raised during the Region IV Component Design Basis Inspection (05000418/2015007) at the Grand Gulf Nuclear Station, has conducted a review of the data requested in Bulletin 88-04, Entergy's response to Bulletin 88-04 as documented in AECM-88/0158, and the design basis for the applicable safety related systems. These reviews revealed the need to submit supplemental data for the High Pressure Core Spray Pumps (HPCS), Residual Heat Removal Pumps (RHR), and the Low Pressure Core Spray Pumps (LPCS) to ensure Entergy's response is complete and accurate.

Entergy has evaluated and determined that the current minimum flow rates are sufficient to ensure that there will be no pump damage from low flow operation. The final minimum flow analyses performed by the vendor for Entergy for the HPCS, RHR, and LPCS pumps are:

HPCS Pump:

- A minimum flow rate of 2200 gpm for continuous operation in excess of 1500 hours annually.
- A minimum flow rate of 1500 gpm for intermittent operation for an annual accumulation of 60 to 1500 hours.
- A minimum flow rate of 1000 gpm for an annual accumulation of 60 hours.

RHR Pumps:

- A minimum flow rate of 2200 gpm for continuous operation in excess of 1500 hours annually.
- A minimum flow rate of 1500 gpm for intermittent operation for an annual accumulation of 60 to 1500 hours.
- A minimum flow rate of 1000 gpm for an annual accumulation of 60 hours.

LPCS Pump:

- A minimum flow rate of 3000 gpm for continuous operation in excess of 1500 hours annually.
- A minimum flow rate of 2200 gpm for intermittent operation an annual accumulation of 60 to 1500 hours.
- A minimum flow rate of 1200 gpm for an annual accumulation of 60 hours.

Based on the data, design, and configuration of the above systems, Entergy has concluded:

- 1) The minimum flow values and limits identified above are sufficient to prevent pump damage under low flow operations.
- 2) The pumps identified above do not use a common minimum flow line, thus there is no concern for a negative pump-to-pump interaction through a minimum flow line.
- 3) The pumps identified above only experience minimum flow conditions during startup and shutdown.
- 4) No pump minimum flow piping configuration changes have been implemented or planned that could result in a negative pump-to-pump interaction.
- 5) No damage has occurred and no repairs have been required due to operating the above pumps under minimum flow conditions.

This letter contains no new commitments. If you have any questions or require additional information, please contact James Nadeau at 601-437-2103.

Sincerely,

JJN/ram



cc: (see page 3)

cc: (continued)

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