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ACCESSION NBR:9710210200 DOC.DATE: 97/10/09 NOTARIZED: NO DOCKET #
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 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287

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SUBJECT: Forwards response to GL 95-07, "Pressure Locking & Thermal Binding of Safety-Related Power-Operated Gate Valves."

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October 9, 1997

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Subject: Oconee Nuclear Station
Docket Nos. 50-269, 50-270, 50-287
Supplemental Response to Generic Letter 95-07:
Pressure Locking and Thermal Binding of Safety-
Related Power-Operated Gate Valves
Change of Commitment

Generic Letter (GL) 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves", was issued on August 17, 1995. GL 95-07 requested licensees to determine if safety-related power-operated gate valves are susceptible to pressure locking and thermal binding phenomena which could lead to inoperability of the valves. Duke Energy Corporation (Duke) responded to GL 95-07 in submittals to the NRC dated October 16, 1995, November 15, 1995, January 6, 1996, February 13, 1996, July 18, 1996, and August 21, 1997.

In the Duke response dated August 21, 1997, Duke included some additional commitments to provide bonnet relief modifications. After further design review, it has been determined that a bonnet relief modification is impractical for valve HP-428 since the valve has bi-directional seating requirements. Attachment 1 provides the justification for the change in commitment for valve HP-428.

Valves SF-82 and SF-97 also have bi-directional seating requirements. However, bonnet relief modifications can be installed for these valves, due to their lower pressure service requirements, following some modification design changes. These design changes involve installing a relief line relief valve. The parts delivery time for these relief valves does not permit completion of the bonnet relief modifications in the

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Unit 1, end-of-cycle (EOC) 17 refueling outage as originally committed to. Duke is currently conducting the Unit 1 EOC 17 refueling outage. Therefore, bonnet relief modifications on valves 1, 2, and 3 SF-82 and 1, 2, and 3 SF-97 will begin in the Unit 2 EOC 16 refueling outage in lieu of the Unit 1 EOC 17 refueling outage.

Please address any questions to D. A. Nix at (864) 885-3634.

Very truly yours,



W. R. McCollum, Jr.
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Attachments

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Attachment 1
Justification for Change in HP-428 Commitment

HP-428 is the Letdown and Reactor Coolant Makeup Pump Recirculation block valve. This valve, as shown in Oconee Flow Diagram (OFD) 101A-1.5 (Unit 1), 101A-2.5 (Unit 2), and 101A-3.5 (Unit 3), (attached), is required to provide isolation in two directions. HP-428 provides sealing in one direction to meet containment isolation requirements. HP-428 provides sealing in the other direction to prevent potential drain down of the spent fuel pool through the fuel transfer tube(s). Due to these bi-directional seating requirements, it is not practical to install a bonnet relief line and route it back to either side of the valve.

In addition, the risk of pressure locking and thermal binding (PLTB) for valve HP-428 is low due to the following reasons:

- 1) The PLTB phenomena which is applicable to this valve is known as hydraulically induced pressure locking (HIPL). HIPL is caused as a result of a rapid depressurization of both sides of the valve disc, causing expansion of trapped fluids between the disc and resulting in disc binding. However, the potential for HIPL on this valve is low since this valve is typically only subjected to about 17% depressurization on one side of the disc (from approximately 2586 psig to 2155 psig).
- 2) Thermal binding is not a concern for this valve.
- 3) 1, 2, and 3 HP-428 contain adequate margin to stroke even in the event that the worst-case PLTB phenomena were to occur. Unwedging forces for Anchor Darling double disc valves are generally low, very predictable, and have been established with a high level of confidence.

Therefore, Duke intends to remove valves 1, 2, and 3 HP-428 from the list of committed-to valves as described in the August, 21, 1997 letter to the staff. Based on the justification above, Duke has concluded that not performing a bonnet relief modification on valves 1, 2, and 3 HP-428 will not adversely impact public health and safety.