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

Gentlemen:

Subject: Oyster Creek Nuclear Generating Station (OCNGS)
Docket No. 50-219
Facility Operating License No. DPR-16
Response to Generic Letter (GL) 95-07: Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves

This letter provides the results of OCNGS evaluations performed in response to NRC Generic Letter (GL) 95-07, dated August 17, 1995, "Pressure Locking and Thermal Binding of Safety-Related Power Operated Gate Valves." NRC Generic Letter 95-07 requested the following actions: (1) evaluations of operational configurations of safety-related, power-operated gate valves for susceptibility to pressure locking and thermal binding, and (2) further analyses, and any needed corrective actions, to ensure that safety-related, power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing the safety functions.

GPU Nuclear has completed the above evaluations for OCNGS nuclear safety-related, power-operated gate valves. No valves beyond those which were previously evaluated as part of GL 89-10 Supplement 6 were identified to be within scope of GL 95-07 as described in the attachments. The evaluation of Generic Letter 89-10 motor-operated valves (MOV) is contained in GPU Nuclear Technical Data Report No. 1128 which has been provided to NRC previously as part of the GL 89-10 MOV program inspections at OCNGS. As a result of this evaluation, OCNGS modified the four Core Spray Injection valves by drilling a hole in the reactor-side disc during the last refueling outage. No other valves were considered potentially susceptible to pressure locking or thermal binding when evaluated for performance of their safety function.

Based on recent industry experience (Reference NRC Region I GL 95-07 Workshop, November 2, 1995), GPU Nuclear is reevaluating safety-related motor-operated valves in TDR 1128 to further address potential thermal binding at reduced temperature differentials.

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This evaluation will be completed by February 17, 1996. GPU Nuclear will notify NRC at that time if any of the conclusions regarding potential thermal binding are revised. This completes the actions required by GL 95-07.

Sincerely,

J. J. Barton
Vice President and Director,
Oyster Creek

Attachments
DJD/plp

c: Administrator, Region I
Oyster Creek NRC Resident Inspector
Oyster Creek NRC Project Manager

ATTACHMENT I

BONNET PRESSURIZATION AND THERMAL BINDING OF GATE VALVES

The following provides a summary of those safety related motor-operated gate valves determined to be potentially susceptible to bonnet pressurization and thermal binding previously evaluated in response to GL 89-10 Supplement 6 guidance, Information Notice (IN) 92-26 and NUREG 1275 concerns.

1. **V-14-34, 35: Double disc parallel seat**

   Ref. Anchor Darling Dwg. W9023271, W9023272

   Function: Isolation condenser condensate return valves. These valves are normally closed and must open on an isolation condenser actuation signal. These valves may be susceptible to pressure locking during a large break LOCA due to double disc design. However, OCNGS revised the plant specific Appendix K analysis to assume only the Core Spray and Automatic Depressurization Systems available and the Isolation Condenser System inoperable. Therefore, if V-14-34 and 35 become pressure locked this is not a nuclear safety concern. The Emergency Operating Procedures (EOPs) which utilize the isolation condensers to reduce reactor pressure and remove energy also provide direction to utilize other means of accomplishing these functions if the isolation condensers are not available. Therefore, susceptibility to pressure locking is not an operational concern. Additionally, high energy line break (HELB) analyses have shown that the reactor is isolated at 400 psi, which is greater than the calculated reactor pressure at which these valves are susceptible to pressure locking assuming 1020 psi remains in the valve bonnet. Accordingly, pressure locking is not a concern for any of these scenarios and the ICS would be available for operator action.

   These valves are double disc design, therefore thermal binding is not a concern.

2. **V-20-12, 18: Flex wedge disc**

   Ref. Anchor Darling Dwg. AU 2077-5

   Function: Core Spray Test Isolation Valves. These valves are normally open and must remain open for core spray operation during a LOCA. They are closed during surveillance testing when reactor pressure is less than 350 psi. Since the valves must be open for core spray operation, they are normally in their safety position, therefore pressure locking is not a concern. If the valves must open during surveillance testing for core spray operation, reactor pressure will be less than 350 psi and pressure

locking is not a concern at that pressure. Since the valves are not closed and allowed to cool before opening, thermal binding is not a concern.

3. V-20-15, 21, 40 41: Flex wedge disc

Ref. Anchor Darling Dwg. AU 2079-5

Function: Core Spray Injection Valves. These valves are normally closed and are required to open during a LOCA. Assuming leakage of the check valves between the reactor vessel and the core spray injection valves, these valves would be subject to reactor pressure of 1020 psi plus static head. The valves are flex wedge design so it is assumed the bonnet is pressurized. Pressure locking is a concern under these assumptions and conditions. These valves were modified during the 15R refueling outage (Fall 1994) to vent the valve bonnet thus precluding the potential for pressure locking.

The system operating temperature is below 200°F so thermal binding is not a concern.

4. V-21-15, 18: Flex wedge disc

Ref. Velan Dwg. P-31193-7

Function: Containment Spray Torus Spray Valves. These valves are normally closed and are required to open during a LOCA for torus spray to depressurize the torus. However, the differential pressure is only 85 psi for this scenario. Since this is a low pressure system, pressure locking is not a concern. Additionally, the potential effect of post-accident thermal expansion in the valve bonnet due to environmental conditions has been evaluated and determined to have no effect on potential pressure locking.

The peak torus temperature during system actuation is 160°F. Since the temperature limit for thermal binding is 200°F it is not a concern for these valves.

5. V-20-3, 4, 32, 33: Solid wedge disc

Ref. Anchor Darling Dwg. AU 2065-5

Function: Core Spray Pump Suction Valves. These valves are normally open and are required to stay open during a LOCA. These valves are solid wedge disc design, therefore pressure locking is not a concern. These valves are closed for surveillance testing at cold shutdown. OCNGS is licensed to hot shutdown, thus these valves are not within the scope of GL 95-07. If required to open for a LOCA during testing, the maximum system temperature of 105°F during normal operation increases to 159°F during an accident, and the environmental temperature of 104°F during normal operation increases to 112°F during an accident. These temperatures are all well below the 200°F limit for thermal binding, therefore it is not a concern for these valves.

6. V-21-5, 11: Solid wedge disc

Ref. Ohio Injector Dwg. OI 1537-X

Function: Containment Spray Drywell Header Spray Valves. These valves are normally closed but are required to be open for drywell spray. These valves are solid wedge disc design, therefore pressure locking is not a concern. The system temperature is the torus water temperature, which is normally below 100°F. If there is a blowdown from the reactor/drywell, the temperature of the torus water will rise to the peak torus temperature of approximately 160°F prior to containment spray startup. This peak temperature is less than 200°F temperature limit for thermal binding, therefore it is not a concern for these valves.

SUMMARY

Based on the above review, no additional actions are required for these valves. As indicated in the cover letter to this attachment, GPU Nuclear is aware of recent information (Reference NRC Region I GL 95-07 Workshop, November 2, 1995) regarding the potential for thermal binding at temperatures less than the 200°F limit utilized for the above GL 95-07 review. This recent information is currently being evaluated for applicability to OCNGS valves and for potential effects, if any. If this evaluation revises any of the above conclusions regarding the potential for thermal binding, GPU Nuclear will notify NRC at that time.

ATTACHMENT II

BONNET PRESSURIZATION AND THERMAL BINDING OF GATE VALVES

The following provides a summary of the review of safety related power-operated gate valves, excluding valves previously reviewed under GL 89-10 in GPU Nuclear Technical Data Report (TDR) 1128, for potential bonnet pressurization and thermal binding.

1. **V-17-1, 2, 3: Flex wedge disc**

   Ref. Anchor Darling Drawing AU 93-14360, AU 93-14243
   Velan Drawing VL-P3-14522-N3

   Function: Shutdown cooling pump suction isolation. Valves are normally closed and to remain closed after an accident. Inservice testing (IST) is performed on these valves at cold shutdown. Oyster creek is licensed to hot shutdown, therefore these valves are not within scope of GL 95-07.

2. **V-21-1, 3, 7, 9: Solid wedge disc**

   Ref. Ohio Injector dwg. OI 1537-X

   Function: Containment spray pump suction (from torus) isolation valves. These valves are normally open and are to remain open in response to an accident. No IST is performed on these valves. Therefore, these valves are not within scope of GL 95-07.

3. **V-21-75, 76: Flex wedge disc**

   Ref. Anchor Darling dwg. AU-W8321853

   Function: Torus water cleanup line isolation from the containment spray suction piping. The valves are normally closed and remain closed after an accident. This containment isolation valve does not have an open safety function. No IST is performed on these valves. Therefore, these valves are not within scope of GL 95-07.

4. **V-37-9, 20, 31, 42, 53: Split disc**

   Ref. Crane Co. dwg. PA-129995

   Function: Recirculation system pump suction valves. The valves are normally open and remain open in response to an accident. These valves are not closed on a recirculation pump trip. These valves could be closed for recirculation pump isolation. There is no safety function to open these valves from a closed position. No IST is performed on these valves. Therefore, these valves are not within scope of GL 95-07.

5. V-37-10, 21, 32, 43, 54: Split disc

Ref. Crane Co. dwg. PA-129743

Function: Recirculation system pump discharge valves. The valves are normally open and remain open in response to an accident. These valves are closed on a recirculation pump trip. There is no safety function to open these valves from a closed position. No IST is performed on these vaives. Therefore, these valves are not within scope of GL 95-07.

6. V-37-11, 22, 33, 44, 55: Solid disc

Ref. Crane Co. dwg. PA-129691

Function: Recirculation system pump bypass valve. The valves are normally open and remain open in response to an accident. These valves are not closed on a recirculation pump trip. There is no safety function to open these valves. No IST is performed on these valves. Therefore, these valves are not within scope of GL 95-07.

SUMMARY

Based on the above review, no additional actions or evaluations are required for these valves.