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U. S. Nuclear Regulatory Commission
Att: Document Control Desk
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Gentlemen:

Subject: Oyster Creek Nuclear Generating Station (OCNGS)
Docket No. 50-219
Facility Operating License No. DPR-16
Response to Request For Additional Information
Regarding Performance of Gate Valves Under Blowdown Conditions

This letter provides the additional information requested in NRC's letter dated January 22, 1996, and as discussed during a conference call on December 4, 1995, concerning the isolation capability of the reactor water clean up (RWCU) system valves. This additional information is provided to support reduced augmented inservice inspection (ISI) on the RWCU piping outside the second isolation valve.

GPU Nuclear is currently planning to ensure that the disc and seat edges and minimum disc-guide clearance for the RWCU isolation valves (V-16-1, V-16-14, and V-16-61) comply with the guidance resulting from the Electric Power Research Institute (EPRI) Performance Prediction Program test results. To confirm these items requires valve disassembly and consists of rounding the valve disc and seat edges as appropriate and verifying proper disc-guide clearance. GPU Nuclear will confirm these parameters or perform necessary modifications during the next valve maintenance activity that involves valve disassembly, such as local leak rate test (LLRT) failure since these motor-operated valves are located in areas of high radiation (V-16-1 is located inside the drywell and V-16-14 and V-16-61 are located in the valve nest). Note, adequate disc-guide clearance was confirmed on valve V-16-1 during 13R.

These valves have been modified as a result of Generic Letter (GL) 89-10 program enhancements such that the close torque switch is bypassed until after flow isolation is achieved. This ensures that the full capability of the valve actuator is available to isolate a postulated RWCU line break.

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Valve actuator capability for each of these valves has been shown to be adequate to achieve flow isolation under high energy line break (HELB) analysis which conservatively assumes full reactor coolant system pressure of 1030 psi upstream of the valve and 0 psi downstream of the valve. Primary side pressure would not be expected to remain at normal operating pressure during a HELB and the break would have to occur immediately downstream of the valve to produce a 0 psi pressure at that location. Therefore, these assumptions are considered conservative.

Valve actuator capability for each of these valves was previously determined based on a stem friction coefficient of 0.20. Oyster Creek has since developed a basis for using 0.15 as the design stem friction coefficient in calculating the stem factor. The stem factor is further increased by 10% to account for potential rate of loading effects. The actual stem friction has been consistently at or below 0.12 for these OCNGS motor-operated valves (includes "as-found" test results for V-16-1 and V-16-61) which correlates to an additional 11.7% margin in available valve thrust.

Valves V-16-1 and V-16-61 are AC motor-operated valves and the valve actuator capability is conservatively determined assuming a worst case degraded grid voltage occurs during the postulated HELB isolation scenario. The degraded grid condition is highly unlikely to occur at OCNGS due to the inherent grid stability and plant voltage regulators which reliably maintain adequate in-plant voltages. Valve actuator capability is significantly increased at voltages greater than the degraded grid assumption since the motor-operated valve (MOV) torque switch setting does not effect the MOV's capability to isolate a HELB. Values previously discussed were based on the degraded voltage setpoint prior to 15R. During 15R, this setpoint was raised, resulting in approximately 10% higher torque available. Additionally, DC motor-operated valve V-16-14 actuator capability is conservatively determined based on the direct voltage method and nameplate motor start torque.

Valve actuator capability is established based on a Limitorque Application factor of 1.0, and an actuator run efficiency of 0.50 for V-16-1 and V-16-61 (AC MOV's) and actuator pullout efficiency of 0.40 for V-16-14 (DC MOV). Utilizing these assumptions, the RWCU isolation valves are capable of isolating a HELB assuming the following conservative valve factors:

V-16-1 : 1.05
V-16-61 : 1.03
V-16-14 : 0.79

Additionally, it is noted that RWCU check valve V-16-63 is located in series with isolation valve V-16-61. V-16-63 is the redundant inside drywell containment isolation valve which also provides HELB isolation capability.

In summary, GPU Nuclear is planning to ensure that the RWCU isolation valves comply with the EPRI recommendations, as stated above, at the earliest opportunity when the valves are required to be disassembled for maintenance purposes. However, the conservatisms and margins that are considered in establishing the existing valve actuator capabilities, as described above, ensure that the RWCU isolation valves are fully capable of performing their intended isolation capability and therefore, the EPRI gate valve test results do not represent a significant safety concern for OCNGS.

If any additional information is needed, please contact Mr. David J. Distel at (201) 316-7955.

Sincerely,

M B Roche

M. B. Roche
Vice President and Director,
Oyster Creek

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c: Administrator, Region I
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