NMP-9920

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD, WEST
SYRACUSE, N. Y. 13202

November 26, 1984

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Washington, DC 20555

Re: Docket No. 50-220
IE Bulletin #84-03

Gentlemen:

IE Bulletin 84-03 requires that an evaluation be performed addressing the refueling cavity water seal failure experienced at Haddam Neck. The failure resulted in the complete drainage of the refueling cavity into the drywell.

The water seal at Nine Mile Point Unit #1 between the refueling cavity and the drywell is provided by the refueling seal platform, drywell refueling seal bellows, and reactor expansion bellows. The reactor expansion bellows is a cylindrical one piece stainless steel bellows seal. Both sides are welded connections, one side is welded to the reactor vessel, and the other to the refueling seal platform. The refueling seal platform is a welded two piece cylindrical flat plate fixed to the inside of the drywell. It contains 24 openings of which 6 are ventilation duct hatches. All 24 openings are open when the reactor cavity is drained, and are sealed with cover plates when the cavity is flooded. The cover plates are bolted in place with a gasket seal between the cover plates and the reactor seal platform. These sealed openings are inspected for leakage as soon as water starts flooding the reactor head cavity (per procedure N1-OP-34). The drywell refueling seal bellows is also a cylindrical one piece stainless steel bellows seal, and is welded to the exterior drywell shell, and the refueling cavity lining. The reactor expansion bellows is monitored by a nonindicating flow switch circuit which alarms in the Control Room on a high flow reading.

The refueling cavity water seal at Nine Mile Point Unit #1 could not experience a failure similar to that which occurred at Haddam Neck. The seal construction provides steel boundaries which are either welded or bolted in place. Therefore, a failure due to lack of interference between the seal annulus width and the opening could not occur at Nine Mile Point Unit #1. For a gross failure to occur it would require a structural failure of a welded connection, which would be highly unlikely.

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The spent fuel pool is designed such that should it be inadvertently drained to its lowest penetration the fuel would still be covered by approximately one foot of water. It is possible however, for a fuel bundle in transit between the reactor core and the spent fuel storage pool to become uncovered. However, it is a simple operation for the operator to lower the bundle to a position where it would remain covered. Assuming no operator actions the consequences of uncovering a newly discharged fuel bundle would be high radiation levels at the refueling floor, and possible release of radioactivity into the secondary containment. Referencing NUREG/CR-0649 (Spent Fuel Heatup Following Loss of Water During Storage), assuming a 30 day minimum decay time and no ventilation, a peak clad temperature of 750°C would occur after 24 hours, which would not be an adequate temperature for cladding failure to occur.

Condensate transfer is automatically initiated to provide makeup for the spent fuel pool on a low level alarm. Operating procedures also specify instructions for correcting alarm conditions.

Therefore it has been determined that for Nine Mile Point Unit #1 the possibility of a gross head cavity water seal failure is highly unlikely, and there are no plans for any additional actions.

Very truly yours,

Thomas E. Lempges

Thomas E. Lempges
Vice President
Nuclear Generation

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