

BOSTON EDISON COMPANY  
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WILLIAM D. HARRINGTON  
SENIOR VICE PRESIDENT  
NUCLEAR

September 21, 1984  
BECO 84-152

Dr. Thomas E. Murley  
Regional Administrator  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

License No. DPR-35  
Docket No. 50-293

Reference: IE Bulletin 84-03: "Refueling Cavity  
Water Seal" dated August 24, 1984

Dear Sir:

Boston Edison Company (BECO) has evaluated the concern identified in IE Bulletin 84-03, and concludes that there is no potential of refueling cavity water drainage due to seal failure at Pilgrim Nuclear Power Station (PNPS). This conclusion is based upon the following:

- a) PNPS has metal refueling bellows that form a seal between the reactor vessel and the surrounding primary containment drywell to permit flooding of the space above the vessel during refueling operations, specifically, fuel movement. The bellow assembly consists of stainless steel bellows, a backing plate, spring seal which acts as a secondary seal, and a removable guard ring. The assembly is welded to a support skirt and the reactor well seal bulkhead plate. The bellows support skirt is welded to the vessel shell flange and the well seal bulkhead plate bridges the distance to the primary containment drywell wall. The backing plate surrounds the outer circumference of the bellows to protect it, and is equipped with a tap for testing and leakage monitoring. A self-actuated spring seal is located between the bellows and the backing plate to limit water loss during a bellows rupture by yielding to make a tight fit to the backing plate when subjected to full hydrostatic pressure. The guard ring attaches to the assembly and protects the inner circumference of the bellows. This ring can also be removed to allow inspection of the bellows.
- b) As demonstrated in the above description, the refueling cavity water seal at PNPS is of an entirely different design than that used at Haddam Neck. The Haddam Neck design consists of air actuated seals,

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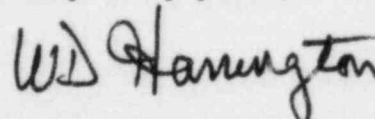
whereas, PNPS uses permanent metallic bellows with no active components, and has a spring seal to act as a secondary seal should the primary seal fail.

- c) Prior to filling the reactor cavity, reactor vessel disassembly sequence require that covers be bolted in place over reactor cavity ventilation air supply and return ducts to prevent water leakage into the ventilation system during cavity flood up. This activity is accomplished via maintenance procedure and is returned to normal venting conditions upon completion of refueling. During refueling outage, the O' rings will be replaced and checked during cavity flood up to ensure no leakage. There are a total of six watertight hinged covers, closed and bolted in place for normal refueling operation.

For the aforementioned reasons, we do not have immediate concern of gross seal failure at PNPS. However, a safety evaluation will be performed and will be submitted to the NRC on or before December 31, 1984.

We believe this response falls within the Bulletin's "Action 2" schedule because PNPS, while shutdown for refueling, has its mode switch in the shutdown position and has not yet begun to reload fuel. Should you have any questions concerning this response, please contact us.

Very truly yours,



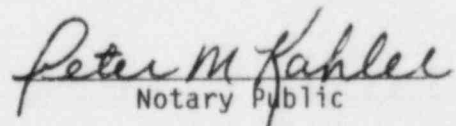
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cc: U. S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D. C. 20555

Commonwealth of Massachusetts)  
County of Suffolk )

Then personally appeared before me W. D. Harrington, who, being duly sworn, did state that he is Senior Vice President - Nuclear of the Boston Edison Company, the applicant herein, and that he is duly authorized to execute and file the submittal contained herein in the name and on behalf of the Boston Edison Company and that the statements in said submittal are true to the best of his knowledge and belief.

My Commission expires: *October 21, 1988*



Notary Public