BOSTON EDISON COMPANY
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WILLIAM D. HARRINGTON
SENIOR VICE PRESIDENT
NUCLEAR

March 5, 1984
BECo 84-036

Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

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

Additional Information on Proposed
Change to Control Rod Drive Weekly
Surveillance Technical Specification

Dear Sir:

By telephone conversation on February 3, 1984, your Mr. Paul Leech requested a copy of the General Electric correspondence which supports our proposed change to control rod drive weekly surveillance technical specifications for the Pilgrim Nuclear Power Station (submitted by letter dated September 12, 1983, BECo 83-238). The attached letter from Mr. R. F. Thibault, General Electric, to Mr. C. J. Mathis, Boston Edison, dated March 4, 1983 is provided in response to this request.

Please contact us if we may provide any further information in support of this proposed technical specification change.

Very truly yours,

W D Harrington

DMV/kmc

Attachment: Letter from Mr. R. F. Thibault,
General Electric, to Mr. C. J. Mathis,
Boston Edison, dated March 4, 1983

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GENERAL ELECTRIC

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G-HK-3-028
March 4, 1983

Mr. C. Mathis
Manager of Operations
Boston Edison Company
Pilgrim Nuclear Power Station
RFD #1
Rocky Hill Road
Plymouth, MA 02360

SUBJECT: PILGRIM NUCLEAR POWER STATION
CONTROL ROD DRIVE (10-31 AND 22-39) CONSULTATION

Reference: Boston Edison Company "Clarification of CRD 10-31 and 22-39 issues" (PNPS File No. TCH-83-54), dated February 16, 1983

Dear Mr. Mathis:

This letter responds to Boston Edison's (BECo) request for General Electric's (GE) concurrence with the conclusions and concerns with Control Rod Drive (CRD) (10-31) and (22-39) stated in the Reference. Justification for technical specification relief on the weekly exercise requirements for the subject rods is also provided.

The reference states that CRDs (10-31) and (22-39) are currently experiencing difficulty with rod withdrawal, excessive withdraw stall flows and high CRD temperatures. Data taken during rod movements indicate that the subject drives would insert and withdraw (once unlatched) with normal drive pressure. The reference concludes that the most probable cause of the observed CRD problems is degraded stop-piston and collet-piston seals.

GE concurs with the stated conclusions of the referenced letter and the concerns resulting from these conclusions with the following exception:

Instead of using GE data on CRD tests with various seals removed as an indication that the measured scram times are "essentially as bad as can be anticipated", it is more appropriate to point out the conditions existing in the CRD's in question, i.e.,:

a) The current measured insert stall flow is low (approximately 2 GPM),

b) There has been no reported problem of rod insertion at normal drive water pressure and

c) The measured 90% scram insertion time history has been relatively stable (approximately 3.4 to 3.9 seconds) for the subject rods during the past year.

These are indications that there is a high probability that insertion times will not degrade significantly further.

Although potentially not directly applicable, tests conducted at GE's Control Rod Drive Test Facility indicate that with various failed stop-piston and collet-piston seals, 90% scram insertion times varied between 3 and 10 seconds. The slower portion of this time band was achieved with all stop-piston, drive-piston and collet-piston seals physically removed. This latter condition is considered to be a worse condition than the current reported condition of CRDs (10-31) and (22-39).

Pilgrim technical specifications require that all CRDs be exercised at least one notch on a weekly basis. This weekly exercise criterion is based on:

a) A 1974/75 collet housing problem (not collet finger),

b) The need to demonstrate that CRDs will move and latch as a result of notch insert or withdrawal signals.

c) The need to flush the crevices under the seals to minimize corrosion on the nitrided surfaces.

An alternative CRD weekly rod exercise, wherein the requirement for latching need not be demonstrated as long as rod movement under normal insert drive pressure has been confirmed, is considered acceptable to GE for problem rods such as CRD (10-31) and (22-39) with improved collet retainer tubes (SIL 139, Supplement 5). The basis for this relief is as follows:

a) The improved collet retainer tube has effectively eliminated the cracking problem, and

b) A partial insert to an intermediate position indication (e.g., position "46" to "45") and a settle back to the original notch would satisfy the requirement of confirming that water pressure is getting to the CRD, that the CRD inserts and the seals are being flushed. This motion, with the resultant settling back into the original notch will also demonstrate mechanical integrity of the collet fingers. (Note: This does not apply to notch position "48" since the rod does not latch. Consequently, GE recommends that the subject rods be inserted to notch "46" or farther).

In summary, GE concludes that for drives which have the same characteristics as drives (10-31) and (22-39) there is a high probability of insertion as a result of a scram signal. Furthermore, elimination of the latching requirement, (i.e., moving into the next even numbered position) during weekly rod surveillance testing can be justified for these problem CRDs.

Very truly yours,

R.F. Thibault
Service Manager - Nuclear

RFT:JFH:mac

cc: R.M. Butler
A.V. Morisi
P. Willard