



BOSTON EDISON

Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

May 1, 1990
BECo Ltr. 90-064

Ralph G. Bird
Senior Vice President — Nuclear

Mr. Thomas T. Martin
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

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

Subject: REPLY TO NOTICE OF VIOLATION (REFERENCE NRC REGION I INSPECTION
REPORT NO. 50-293/90-05)

Dear Mr. Martin:

Enclosed is Boston Edison Company's reply to the Notice of Violation contained
in the subject inspection report.

Please do not hesitate to contact me if there are any questions regarding the
enclosed reply.

R. G. Bird
for R. G. Bird

RLC/bal

Enclosure

cc: Sr. NRC Resident Inspector - Pilgrim Station

Standard BECo Distribution

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ENCLOSURE

REPLY TO NOTICE OF VIOLATION

Boston Edison Company
Pilgrim Nuclear Power Station

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

As a result of the inspection conducted at Pilgrim Nuclear Power Station from January 16 through March 8, 1990 and in accordance with the NRC Enforcement Policy (10 CFR 2, Appendix C), the following Violation was identified:

NOTICE OF VIOLATION

Technical Specification 4.7.A.2.b.1.d states that at least once per operating cycle the operability of the reactor coolant system instrument line flow check valves shall be verified.

Contrary to the above, since procurement in May 1986, the operability of two reactor coolant system instrument line flow check valves had not been verified.

This is a Severity Level IV Violation (Supplement 1).

RESPONSE TO VIOLATION

BACKGROUND:

Pilgrim Station has 82 installed excess flow check valves. Eighty (80) are manufactured by Chemiquip and two (2) are manufactured by Dragon. The Dragon valves which are the subject of this violation are installed on one inch instrument lines outside of containment. The Dragon valves were installed on the instrument reference legs as part of a modification in 1987.

The operability of the excess flow check valves is verified by performing surveillance testing in situ with the plant in a cold pressurized condition by venting the instruments downstream of the check valves to cause them to check.

Following installation of the two Dragon valves in 1987, a post modification surveillance test was conducted to prove operability of the 82 excess flow check valves. In July of 1988, BECo reviewed its past surveillances in preparation for startup. This review identified that the two new Dragon valves had not actually been tested in situ because achievable test flow was limited to approximately 2 GPM while the design actuation flow was 5-6 GPM. The 80 Chemiquip valves were successfully tested.

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The surveillance test was approved based on a July 1988, BECO memorandum which justified use of the manufacturer's test to prove operability until RFO-8 when the two Dragon valves would be replaced. At the time, RFO-8 was scheduled to begin in December 1990. The definition of operating cycle in effect during July 1988 required the Dragon valves to be tested before restart from RFO-8. Within this context, the recommendation to replace the valves in RFO-8 was sound.

In November of 1988, BECO's definition of the surveillance interval for operating cycle was revised to 18 months + 25%. This revision changed the due date of the next excess flow check valve surveillance from December 1990 to October 1989. Because of this change, the plant was shut down in October of 1989 to conduct the check valve surveillances as well as others that could not await RFO-8.

During the October 1989 outage we again tested the 80 Chemiquip excess flow check valves and unsuccessfully attempted to check the Dragon excess flow checks. Questions concerning seat leakage criterion for the Chemiquip valves resulted in an engineering service request being written. Revised criterion was conveyed to the Station on November 3, 1989 with the July 1988 memo attached. The memo stated that operation until RFO-8 was acceptable without Dragon valve testing, and was misconstrued to be an adequate basis for waiving of the surveillance test. The test was signed-off referencing the engineering memo as a basis for not testing the 2 Dragon valves. The minor safety significance of the issue drew attention away from the Technical Specification compliance issue.

In response to an NRC question, on January 12, 1990, BECO initiated a records review to find justifying documents for waiving the November 3, 1989 Dragon valve operability test.

The review of the applicable documents on February 2, 1990 concluded that while no safety issue existed, the approach used to waive the test was not valid. A clarification to the Technical Specifications was proposed.

On February 9, 1990 the Operations Review Committee (ORC) reviewed the proposed Technical Specification clarification and ORC agreed that no safety issue existed, but that waiver of the test was contrary to Technical Specification compliance and not within the scope of a clarification. The ORC chairman promptly notified the Station Director.

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CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

Immediate corrective steps were initiated including entering a 24 hour Limiting Condition for Operation (LCO) and requesting Technical Specification (TS) relief from TS 4.7.A.2.b.1.d. Compensatory measures were established to assure integrity of the two (2) valves and a night order entry was made to ensure that appropriate operations personnel understood the issue and the compensatory measures. These measures included:

- Controlling access to the sensing lines;
- Controlling maintenance in the area of the sensing lines;
- Preparation of a Radiation Work Permit to allow rapid, controlled access to the root valves for isolation of the excess flow check valves if required; and
- Conducting shift tours to ensure the integrity of the sensing lines was maintained.

These mitigating actions continued until the plant was shutdown on March 11, 1990 for a planned mid-cycle outage.

CORRECTIVE ACTION TAKEN TO PREVENT RECURRENCE

In the longer term, the two (2) excess flow check valves were replaced with testable valves during the mid-cycle outage.

To bound the issue a review of completed surveillance procedures was initiated to assure that similar problems did not exist elsewhere. Concurrent with this review, the Systems Engineering Division identified a related Technical Specification compliance issue associated with the Technical Specification requirements for Primary Containment isolation valves MO-1001-60 and MO-1001-63. A detailed discussion of this compliance issue is provided in Licensee Event Report (LER) 90-006-00.

An investigation was also conducted using the Human Performance Evaluation System (HPES). The HPES report was completed on March 23, 1990.

Each of the processes that were involved in this issue were reviewed for adequacy. The four processes reviewed are:

- Modification process;
- Surveillance process;
- Failure and Malfunction (F&MR) process; and
- Technical Specification clarification process.

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MODIFICATION PROCESS:

Within the modification process, several issues were examined. The design check flow rate was specified to be greater than the system would produce. Although the valves would perform their function in the event of an instrument line break, the valves were not testable as installed. This was an isolated error in 1985. The responsible design engineer was counselled.

The applicable surveillance test procedure was not identified for revision when the design change package was reviewed in 1985. In 1989 as part of an ongoing Quality Assurance (QA) Audit program, the QA Department identified a need for improvement in the identification of procedures affected by design changes. The modification process was revised to require two independent reviews in this area.

In 1987, the post-modification test did not identify the inability to perform the in situ test. This was a problem with the specific surveillance test procedure used, and not a modification process issue. The procedure was corrected.

SURVEILLANCE PROCESS:

Review of the surveillance process raised two issues:

- Nomenclature errors in the 1987 excess flow check valve surveillance procedure used as a post modification test; and
- An inappropriate sign-off of the November 1989 surveillance.

The nomenclature errors were corrected shortly after discovery in the summer of 1988. During this same time, a strengthened procedure validation process was established which would identify problems of this nature prior to procedure implementation. In addition, during this period procedure walkdowns were being conducted to verify surveillance procedure nomenclature. With today's improved procedure writers' guide we have corrected this programmatic issue with procedure review.

The "Conduct of Operations" Procedure (PNPS 1.3.34) required that Technical Specification surveillances which have exceptions be independently reviewed by the Nuclear Operations Supervisor or Shift Technical Advisor prior to sign-off. This instruction was and is adequate, and had the question on the review form been addressed, this may have prevented the sign-off of the surveillance. This point was reviewed with the operating staff as part of the procedure compliance/attention to detail upgrade effort which was ongoing throughout the latter half of 1989. Extensive management review has shown this effort to be effective.

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F&MR PROCESS:

A review of the F&MR focused on why the F&MR was closed out without identifying the Technical Specification compliance issue. The F&MR form itself requires a reportability review. However, the work instruction which the compliance engineer used to accomplish this review required strengthening. This has been accomplished. A review of approximately 150 F&MRs indicated that similar situations do not exist.

T.S. CLARIFICATION PROCESS:

The TS clarification process was also reviewed. Based on this review it was concluded that the process works but needs strengthening. The inappropriately proposed clarification was identified by the Operations Review Committee (ORC). The Regulatory Affairs Manager has counselled Licensing and Compliance Division personnel regarding the need for scrupulous, independent review of regulatory guidance to ensure the requirements of the Technical Specification are met. A review by the Licensing Division Manager verified that current Technical Specification Clarifications are appropriate as written. The clarification process has been strengthened by obtaining an SRO (or equivalent) review of the proposed clarification prior to submittal for ORC review.

DATE OF FULL COMPLIANCE

Full compliance was achieved in April 1990, following satisfactory installation of two in situ testable excess flow check valves. These replacement valves were satisfactorily tested by the vendor prior to installation.