

Maine Yankee

RELIABLE ELECTRICITY FOR MAINE SINCE 1972

EDISON DRIVE • AUGUSTA, MAINE 04330 • (207) 622-4868

January 11, 1991
MN-91-11 SEN-91-18

UNITED STATES NUCLEAR REGULATORY COMMISSION
Attention: Document Control Desk
Washington, DC 20555

References: (a) License No. DPR-36 (Docket No. 50-309)
(b) USNRC Letter to MYAPCo dated November 6, 1990
(c) USNRC Letter to MYAPCo dated December 6, 1990
(d) USNRC Letter to MYAPCO dated November 19, 1987
(e) USNRC Letter to MYAPCo dated October 23, 1989
(f) MYAPCo Letter to USNRC dated October 24, 1990 (MN-90-108)

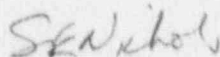
Subject: NRC Inspection No. 90-19, Response to Notice of Violation: EQ Limit
Switches and Regulatory Guide 1.97 Instrumentation

Gentlemen:

The attachment to this letter responds to the Notice of Violation contained in Reference (b). In the attachment to this letter, we have restated the violation, provided our response, and have addressed our actions taken and planned to prevent recurrence. We have also provided an explanation of the apparent cause of the erroneous February 28, 1985 submittal, our plans to prevent recurrence, the status of our independent Regulatory Guide 1.97 implementation review, and our plans for audit of similar submittals.

Please contact us should you have any questions regarding this matter.

Very truly yours,



S. E. Nichols, Manager
Nuclear Engineering & Licensing

SEN/sjj

Attachment: Response to Notice of Violation

c: Mr. Thomas T. Martin
Mr. Charles S. Marschall
Mr. E. H. Trottier

9101170197 910111
PDR ADOCK 05000309
Q FDR

SEN9118.LTR

170020

A003
1/1

ATTACHMENT

Notice of Violation A

An NRC Order dated June 14, 1984 required, in part, the installation of environmentally qualified limit switches providing position indication for the containment isolation valves which are required to be environmentally qualified by 10 CFR 50.49.

Contrary to the above, as of October 30, 1990, Maine Yankee had not provided environmentally qualified limit switches for containment isolation valves required to be environmentally qualified by 10 CFR 50.49. Specifically, inadequate sealing of the conduit connection to multiple switches allowed moisture intrusion which rendered limit switch PS-A-20 inoperable during normal operation and invalidated environmental qualification of the other such switches providing required position indication for containment isolation valves.

Maine Yankee Response

The NRC inspection report, Reference (b), separates this item into the following three parts:

- a. Lack of drain hole in 3M Scotchcast Conduit Seal;
 - b. Failure to properly restore the EQ enclosure after switch modifications; and
 - c. Invalidation of qualification due to elbow fitting modifications.
1. The reason for the violation and its root cause will be addressed for each item.
 - a. The Scotchcast seals were installed during the 1982 and 1984 refueling outages without a drain hole per the design change instructions. The original documentation qualified the seals without a drain hole. A later revision to the documentation incorporated additional testing which included a drain hole. The discrepancy between the revised documentation and the plant installation was noted during an NRC audit and documented in Inspection Report 50-309/87-16, Reference (d).
 - b. Several EQ limit switches were modified during original installation by reversing the rotation of the limit switch cam operation. The cam reversal does not affect qualification providing the EQ enclosure is maintained by inspecting/replacing the cover gaskets and torquing the cover screws.

During the NRC inspection in October 22-23, 1990, adequate documentation was not available to demonstrate that the cover gaskets had been inspected/replaced and that the cover screws had been properly torqued. This documentation was later discovered as described below.

- c. Qualification test reports for the limit switches require the integrity of the enclosure to be maintained by the end user. Pipe fittings were installed between the Crouse-Hinds EYS, explosion-proof fitting (which contained the 3M Scotchcast seal) and the limit switch housing. During the October 22-23, 1990 NRC inspection and the November 15, 1990 Enforcement hearing, documentation was not available to demonstrate qualification of the interface between the EYS fitting and the limit switch housing. This information was later discovered as described below.

2. Immediate corrective actions which have been taken and the results achieved:

As noted in Reference (h), Maine Yankee experienced previous failures of limit switches due to moisture intrusion. Thirty-six 3M Scotchcast seals were replaced during Maine Yankee's 1990 refueling outage and the remaining were scheduled for replacement during the current cycle and upcoming refueling shutdown. Upon failure of the limit switch associated with PS-A-20 due to moisture intrusion, Maine Yankee elected to shut down and replace all remaining 3M Scotchcast seals with qualified NAMCO connectors thus eliminating any question of limit switch environmental qualification. Nonetheless, the following correspond to those items noted above:

- a. It was not feasible to install a drain hole above the 3M Scotchcast installation due to the possibility of damaging the cables. A calculation was prepared to demonstrate that, should the 3M Scotchcast seal fail, the accumulation of condensate resulting from a DBE would not be sufficient to adversely affect limit switch operation. This calculation was reviewed by the NRC and is documented in Inspection Report 50-309/89-16, Reference (e).
- b. The original installation instructions provided for cam rotation. The instructions included torquing requirements for the cover screws and inspection, or replacement of the gaskets.

Subsequent to the October 1990 NRC inspection, additional information was located which confirmed qualification of the limit switches whose cams had been reversed. However, prior to locating this documentation the limit switches with reversed cams were replaced with new limit switches.

- c. The Crouse-Hinds explosion-proof EYS fittings use standard NPT threads as does the Namco EA Series limit switches.

Subsequent to the enforcement hearing, additional information was obtained which confirms that the interface of NPT threads does not require a pipe thread sealant to achieve a leak tight joint.

3. The corrective actions that will be taken to avoid further violations:

- a. As described above, the 3M Scotchcast seals were replaced with NAMCO connectors at Maine Yankee.

- b. After discovery of problems with the 3M Scotchcast seals, a procedure was issued to ensure that the integrity of the limit switch enclosure is not compromised during installation and maintenance activities. Additionally, the qualification files (QDRs 1135-2 and 1135-3) for the limit switches were revised to include precautions for maintaining the EQ enclosure.
 - c. The present qualification files for the limit switches as well as the plant procedure require the use of an environmentally qualified RTV sealant at the threaded connection between the limit switch housing and the connector assembly.
4. Date when full compliance was achieved:

The 3M Scotchcast seals were replaced with Namco EC210 Series connectors and full compliance was achieved on October 26, 1990.

Notice of Violation B

An NRC Order dated June 14, 1984 required, in part, that the post-TMI items set forth in NUREG-0737 be implemented by October 1, 1985, including implementing the guidance in Regulatory Guide 1.97. Regulatory Guide 1.97, Revision 3, Table 1, Section 2, specifies that, for the Engineered Safety Feature (ESF) lightboxes which indicate valve position status in the control room, independent channels be provided to preclude single failures.

Contrary to the above, as of October 19, 1990, the Engineered Safety Features (ESF) valve position status light lightboxes which indicate valve position status in the control room were not supplied by independent channels to preclude single failures.

Maine Yankee Response

1. The reason for the violation, including root cause:

In 1983 a review of plant instrumentation was conducted to determine the degree in which installed equipment conformed with Regulatory Guide 1.97, Revision 3. For containment integrity (CI) valve position indication, the control circuit power supply for each of the CI valves was erroneously identified as providing power to the indication circuits.

The results of this review were used to determine the upgrades needed to comply with the Regulatory Guide. Maine Yankee's submittal, dated February 28, 1985, to the NRC providing Maine Yankee's status regarding Regulatory Guide 1.97 was also developed from the results of this review. The submittal was reviewed several times to ensure that the information transferred to the submittal document was not misleading, however, the incorrect information regarding power supplies for CI valve position indication was not identified.

The root cause of the erroneous submittal appears to be a failure to conduct an adequate verification of the research performed to determine compliance with Regulatory Guide 1.97.

2. Immediate corrective actions which have been taken and the results achieved:

Maine Yankee evaluated the impact of this condition on plant operation. It was determined that it is very unlikely that the specific events would occur which would result in lost CI valve position indication. Nonetheless, Maine Yankee established guidelines for control room operators to follow in the event of an accident requiring containment isolation and failure of the ECCS light box CI valve position indication. These guidelines were summarized in Reference (f).

A design change has been initiated which will provide redundant and separate power for CI valve position indication for those containment penetrations utilizing two motor and/or air operated valves. As described in Reference (f), this design change is scheduled for installation during the next refueling shutdown (October, 1991).

3. The corrective actions that will be taken to avoid further violations:

Maine Yankee has contracted Combustion Engineering to perform an independent review of Maine Yankee's compliance with Regulatory Guide 1.97 commitments to the NRC. A product being developed during this review will be a generic "assessment procedure" which will govern future technical reviews similar to the Regulatory Guide 1.97 review. This assessment procedure will provide guidelines to be followed for technical assessments such as required use of controlled documents, and independent technical reviews which are similar to those guidelines followed during development of engineering design changes. It will also describe those activities requiring formal assessments. The review of Regulatory Guide 1.97 is underway with completion scheduled for March 30, 1991. The assessment procedure is expected to be completed by March 30, 1991.

Additionally, as discussed during the November 15, 1990 enforcement conference, Maine Yankee believes the improper submittal of February 28, 1985 was an isolated occurrence. To verify this is the case, Maine Yankee is conducting an audit of similar technically complex correspondence submitted to NRC since 1982 to ensure the submittals are technically complete and accurate. We anticipate approximately five submittals will be reviewed in depth. This sample may be expanded should additional similar errors be found. The "generic assessment procedure" described above will be used to govern the submittal reviews. This effort is expected to be complete by March 30, 1992.

4. Date when full compliance will be achieved:

Full compliance with NRC Order dated June 14, 1984, relating to the containment isolation valve position indication, will be achieved upon completion of modifications to the ECCS light box during Maine Yankee's cycle 12/13 refueling shutdown.