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February 28, 1986

O. D. KINGSLEY, JR.
VICE PRESIDENT - NUCLEAR OPERATIONS

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Reactor Containment Building
Integrated Leak Rate Test
AECM-86/0039

In accordance with the requirements of 10 CFR 50 Appendix J, attached is the summary technical report for the Integrated Leak Rate Test (ILRT) completed on November 4, 1985 at Grand Gulf Nuclear Station (GGNS) Unit 1.

This test was determined to have been a failed Type A test due to the acceptance criteria of Appendix J, paragraph III.A.5.(b)(2) not being met until certain containment penetrations were isolated. The isolation of the containment penetrations reduced the leakage to allow successful completion of a Type A test. Under the provisions of Appendix J, Paragraph III.A.6(a) Mississippi Power & Light (MP&L) is required to submit a test schedule for subsequent Type A tests for review and approval by the Commission.

MP&L proposes that the schedule for subsequent Type A tests not be altered from the schedule currently specified in GGNS Technical Specification 4.6.1.2.a. due to the test failure. The four penetrations which were the cause of the test failure have been evaluated, and corrective actions have been taken to preclude these problems in the future. A summary of the problems and the corrective actions taken is provided in Attachment 1.

The ILRT report (Attachment 2) contains an analysis and interpretation of the Type A test results and a summary analysis of periodic Type B and C tests that were performed since the last Type A test. In Appendix E of the report, please find a summary of Type B and C tests that failed to meet the acceptance criteria of III.B.3, and III.C.3. A summary of the failure of the Type A test is found in Section 3.0 of the Reactor Containment Building Integrated Leak Rate Test Final Report.

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In accordance with 10 CFR 170.21, please find an application fee of $150.00 attached to this letter.

If you have any questions, or require further information, please contact this office.

Yours truly,

ODK:dmm
Attachments

cc: Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. R. C. Butcher (w/a)

Mr. James M. Taylor, Director (w/a)
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Dr. J. Nelson Grace, Regional Administrator (w/a)
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CAUSE OF ILRT FAILURE AND
CORRECTIVE ACTIONS

1. The isolation valves in two Main Steam line penetrations were closed prior to the Type A test using the test mode switch which limits the speed of closure. This method is only used for testing and is not the normal method of closure. The test mode function is to verify operability of the Main Steam Isolation Valves (MSIVs) at a slow closure speed during plant operation. The reduced valve closure speed restricts the ability of the valves to seat properly. The normal method of closure allows the valves to close at fast speed and provides for proper seating of the MSIVs. Plant procedures have been revised to specify that the normal valve closure method vice the test mode be used for closing these valves prior to leak rate tests.

2. The isolation valves in a spare Standby Liquid Control System penetration were not completely closed prior to the Type A test. Corrective maintenance was performed on both valves to restore them to a leak-tight condition; it was determined that one-time actions would prevent this condition in the future.

   a. The inboard isolation valve is a manual stop check valve which has been required to be locked in the handwheel open position during normal operation. This penetration is a spare penetration with capped ends and designated for future use. Plant procedures were revised to specify the normal position of this valve as locked closed and corrective maintenance was performed to provide a leak-tight condition. Until this penetration is modified to incorporate it into a piping system, the inboard isolation valve will remain locked closed.

   b. The outboard isolation valve is a manual gate valve which was found to be partially open after the Type A test. The cause was determined to be a lack of internal lubricant on the valve stem. The valve stem was lubricated and proper valve seating was verified by a Type C test.

3. The Residual Heat Removal (RHR) test return line valve (Q1E12F064C in penetration 24) was another cause of the Type A failure. The original technical specification required Type C testing of this valve with water. Subsequently a determination was made that air testing was required (MP&L letter AECM-83/0540, dated September 12, 1983), and the technical specification was subsequently changed to provide for air testing.

   Failure of the Type C test for the subject valve prior to the Type A test required an infinite penalty to the Type A test. Corrective maintenance was performed on the subject valve and a successful "as left" Type C test was performed.

It was determined that a permanent design modification would allow testing of the valves in penetration 24 with water. The modification consisted of extending the RHR test return line approximately 18 inches deeper into the suppression pool and requesting a Technical Specification change to allow Type C testing with water. (MP&L request AECM-85/0168, dated July 3, 1985, and subsequent issuance of Amendment 4 to the operating license MAEC-85/0314, dated September 18, 1985.) Type C testing of this valve will be performed in the future with water. This modification is summarized in Appendix D of the report.

4. As required by Appendix J Section III.A.1.(a) if during the performance of a Type A test excessive leakage paths are identified which result in the Type A test not meeting the acceptance criteria the leakage paths may be isolated. The Type A test may be continued until completion provided that local leakage rates are measured before and after the repair and are reported to the commission. However, due to the fact that this was initially a failed Type A test, MP&L did not attempt to add the "as-found" combined Type B and C penalty leakage to the "as-found" Type A leakage of approximately 0.7 weight percent per day. This Type A leakage measured in the initial phase of the Type A test included leakage from the three penetrations described in items 1 and 2 above. However, the combined Type B and C leakage penalty would have been infinite based on the valve and penetration described in item 3 above. Due to an inability to pressurize the test volume associated with the valve in item 3 above to 11.5 psig for a Type C test, the leakage was considered infinite.

   With the penetrations isolated, the Type A test was successfully completed. Corrective actions were performed as described in items 1 thru 3 above which allowed the successful completion of the Type A test. For penetrations isolated to reduce the leakage rate, the minimum pathway local leakage measured following post-test normal closure or repair of the isolation valves was added into the leakage rate of the Type A test. The details of the Type C test failures are provided in Appendix E of the attached report.

Conclusions

Based on the above discussion, the sources of leakage were identified and corrective actions were taken. MP&L recommends that the schedule for subsequent Type A testing remain as currently specified in Technical Specification 4.6.1.2.a. for GGNS Unit 1.