



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REVIEW OF RESPONSE TO NRC GENERIC LETTER 88-01

COMMONWEALTH EDISON COMPANY

QUAD CITIES STATION, UNITS 1 AND 2

DOCKET NOS. 50-254 AND 50-265

1.0 INTRODUCTION

Commonwealth Edison Company, the licensee, submitted its response to NRC Generic Letter (GL) 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping" for Quad Cities Station, Units 1 and 2, by letter dated July 29, 1988, and additional information requested by the staff was provided by letters dated June 9, 1989 (Unit 1), July 21, 1989 (Units 1 & 2), and November 7, 1989 (Unit 2). In addition, the licensee provided Unit 1's final inspection results for IGSCC by letter dated December 18, 1989. GL 88-01 requested licensees and construction permit holders to resolve the IGSCC issue for BWR piping made of austenitic stainless steel that is four inches or larger in nominal diameter and contains reactor coolant at a temperature above 200 degrees Fahrenheit during power operation regardless of Code classification. The licensee was requested to address the following:

1. The current plans regarding pipe replacement and/or other measures taken to mitigate IGSCC and provide assurance of continued long-term integrity and reliability.
2. The Inservice Inspection (ISI) Program to be implemented at the next refueling outage for austenitic stainless steel piping covered under the scope of this letter that conforms to the staff positions on inspection schedules, methods and personnel, and sample expansion included in GL 88-01.
3. The Technical Specification change to include a statement in the section on ISI that the ISI Program for piping covered by the scope of this letter will be in staff positions on schedule, methods and personnel, and sample expansion included in GL 88-01 (see model BWR Standard Technical Specifications enclosed in GL 88-01). It is recognized that the Inservice Inspection and Testing sections may be removed from the Technical Specifications Improvement programs. In this case, this requirement shall remain with the ISI section when it is included in an alternative document.
4. The confirmation of your plans to ensure that the Technical Specifications related to leakage detection will be in conformance with the staff positions on leak detection included in GL 88-01.

5. The plans to notify the NRC in accordance with 10 CFR 50.55a(g) of any flaws identified that do not meet IWB-3500 criteria of Section XI of the Code for continued operation without evaluation, or a change found in the condition of the welds previously known to be cracked and your evaluation of the flaws for continued operation and/or your repair plans.

2.0 DISCUSSION

The licensee's response to NRC GL 88-01 has been reviewed by the staff with the assistance of its contractor, Viking Systems International (VSI). The attached Technical Evaluation Reports (TERs) are VSI's evaluation of the licensee's response to NRC GL 88-01. The staff has reviewed the TERs and concurs with the evaluations, conclusions, and recommendations contained in the TER, with the exception as discussed below, with regards to licensee's positions on IGSCC classifications of castings. In the review of the licensee's GL 88-01 submittal, the staff has found the following positions to be unacceptable:

1. Units 1 & 2 - The licensee's position not to include the welds of the RWCU piping outboard of the isolation valves in the IGSCC inspection plan.
2. Units 1 & 2 - The licensee's position to average the unidentified leak rate over a 24-hour period. The averaging method of reporting unidentified leak rate is not conservative and should not be used.
3. Units 1 & 2 - The licensee's position not to amend the Technical Specification (TS) to include a statement on ISI as required in GL 88-01.
4. Units 1 & 2 - The licensee's position not to include one of the two inaccessible welds that is not scheduled for replacement in the IGSCC inspection schedule because the subject weld may not be in the scope of GL 88-01. The licensee is requested to expeditiously determine if the weld in question is in the scope of GL 88-01 and if augmented inspection is required, the licensee should take actions in accordance with GL 88-01 for inaccessible welds as follows: welds should be replaced, "sleeved," or local leak detection applied. UT examination or visual inspection for leakage may also be considered.
5. Unit 1 - The licensee's IGSCC classifications for two four-inch diameter welds (no weld numbers) in the Head Vent, Head Spray, and Control Rod Drive weld population were reclassified from IGSCC Category D to IGSCC Category A. The licensee did not provide a justification for the reclassification of these two welds. In addition, the licensee classified weld No. 02J-54 as IGSCC Category F instead of Category E. The licensee is requested to provide a justification for the reclassification of the two four-inch welds, and weld No. 02J-54.

6. Unit 1 - The licensee's position on inspection schedules for IGSCC Category F welds. GL 88-01 requires inspection of IGSCC Category F welds during every refueling outage. The licensee has not scheduled any future inspections of the Category F welds. The licensee's inspection plans should be revised to include Category F weld inspections as required in GL 88-01.
7. Unit 2 - There are inconsistencies in the number of welds assigned to each of the IGSCC categories as given in the licensee's submittals dated July 29, 1988, July 21, 1989, and November 7, 1989; e.g., the number of IGSCC Category F welds listed in the licensee's submittal dated November 7, 1989, is the same as that listed in the licensee's submittal dated July 21, 1989. However, in the licensee's submittal dated November 7, 1989 there are six more welds listed than in the licensee's submittal dated July 29, 1988. The staff's review of the licensee's mitigating actions and previous inspections was based on the licensee's submittal dated July 21, 1989, and the staff's review of the licensee's future inspection plans was based on the licensee's submittal dated November 7, 1989. The staff requests that the licensee clarify the inconsistencies in their submittals.
8. Unit 2 - The licensee omitted an accessible Category G (no weld number) weld in its IGSCC inspection schedule. The licensee did not provide a justification for omitting this weld from the IGSCC inspection schedule; thus, the licensee is requested to address the omission of the referenced weld.

For a detailed discussion of the above items, see Sections 2.0 and 3.0 of the TERs.

9. Units 1 & 2 - The staff takes exception to the TER recommendation to accept the licensee's position of classifying IGSCC Category A for all nonconforming castings. GL 88-01 defines castings as IGSCC Category A only in the form of pump and valve bodies; it does not include other configurations such as cast elbows, Tees, etc. No other nonconforming castings are exempt from augmented IGSCC inspections. The licensee is requested to reclassify these welds as delineated in GL 88-01.
10. Units 1 & 2 - The staff finds that the TER recommendation to accept the licensee's position to monitor leakage approximately once every 4 hours acceptable, with the exception the licensee needs to define the numerical value of "small interval tolerance" as stated in the licensee's submittal dated July 21, 1989, pages 1-5, heading "Table 4, position 3."

The staff has re-evaluated the frequency of leakage monitoring. After discussions with several BWR operators the staff concluded that monitoring every 4 hours creates an unnecessary administrative hardship to the plant operators. Thus, Reactor Coolant System (RCS) leakage measurements may be taken every 8 hours instead of every 4 hours as required in GL 88-01.

3.0 CONCLUSION

Based on the review of the licensee's NRC GL 88-01 response the staff concludes that the response, as evaluated, is acceptable with the exception of the licensee's positions as identified above. The licensee is requested to submit a TS change that would incorporate the requirement of an ISI statement and leakage detection as delineated in GL 88-01 with the exception that leakage may be monitored every 8 hours instead of every 4 hours. Furthermore, the licensee is requested to submit inspection plans for the RWCU piping outboard of the isolation valves and address the staff concerns as discussed above.

The staff also concludes that the proposed IGSCC inspection and mitigation program will provide reasonable assurance of maintaining the long-term structural integrity of austenitic stainless steel piping in the Quad Cities Station, Units 1 and 2.

Principal Contributor: T. McLellan/W. Koo

Dated: August 21, 1990