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M. J. COONEY
MANAGER
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ELECTRIC PRODUCTION DEPARTMENT

July 3, 1985

Docket No. 50-352

NPF-27

Mr. Richard W. Starostecki, Director
Division of Reactor Projects
Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Your letter dated June 7, 1985 forwarded Inspection Report 50-352/84-48 for Limerick Generating Station Unit 1 as the result of an inspection conducted on August 27-30, 1984 in response to allegations related to structural and piping design activities performed by Bechtel for Limerick, Susquehanna and Hope Creek. Your letter indicates that none of the allegations pertaining to Limerick were substantiated nor were any violations identified. However, four discrepancies relating to the Limerick feedwater check valve slam analysis conducted by Bechtel and provided in a July, 1983 report were identified.

Attached is a copy of the "Evaluation of Feedwater Containment Isolation Check Valves for a Hypothetical Pipe Rupture Condition" for Limerick dated September, 1984, a copy of which was provided to the NRC Resident Inspector (J. T. Wiggins) on May 20, 1985. This report includes the feedwater check valve slam analysis which was revised by Bechtel in order to address the discrepancies identified as a result of the NRC inspection. The four discrepancies noted in Section 4.5.4 of the NRC Inspection Report are restated below along with our response which identifies, by page number, the section of the Bechtel analysis report which addresses that specific discrepancy.

- a. The material properties assumed in the analysis were for SA-216; however, the manufacturer's (Atwood and Morrill Co.) drawings indicated the valve body and disc materials to be SA-352, Grade LCB. This inconsistency in the analysis was not properly reviewed and evaluated for acceptability.

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Response

The material properties assumed in the revised analysis are for SA-352, Grade LCB as identified on page 16 of the attached Bechtel report.

- b. The material properties used in the analysis were based on room temperature; whereas, the system was designed for 425 degrees F service temperature. The higher service temperature resulting in lower tensile properties of the material was not properly evaluated and accounted for in the analysis.

Response

The material properties used in the revised analysis are based on an actual system operating temperature (rather than system design temperature) of 420 degrees F as identified on page 6 of the attached Bechtel report.

- c. No calculation or other documented evidence was available to establish the integrity of hinge/hinge-pin during valve closure and disc/seat deformation at the time of seating.

Response

The evaluations to establish the integrity of the hinge/hinge-pin during valve closure and disc/seat deformation at the time of seating are provided on pages 13-18 of the attached Bechtel report.

- d. The evaluation did not address the use of welded-in seat seal in place of direct disc contact with the weir/orifice of the valve body.

Response

The use of welded-in seat seal in place of direct disc contact with the weir/orifice of the valve body is identified in Figure 2 on page 14 of the attached Bechtel report.

The NRC review of Bechtel's 1983 analysis and the margins with respect to ultimate strain limits demonstrated by the analysis indicated that the structural integrity of the valve would be retained. The revised 1984 Bechtel analysis corrects the discrepancies identified in Inspection Report 50-352/84-48 and confirms that the structural integrity of the valve would indeed be retained.

The discrepancies described in Section 4.5.4 of the NRC Inspection Report were caused by an improper drawing which was provided internally within Bechtel as the basis for a preliminary study with related calculations in 1983 (feedwater check valve analysis). In particular, a valve outline drawing for a check valve other than the one being analyzed was included with the information to be used in performing that analysis. (The Bechtel study and related calculations (analysis) were subsequently revised in September, 1984 using the correct drawing.)

A review of the analysis which was performed in 1983 indicates that it was performed in accordance with the established procedures in effect at that time. The analysis was performed by Bechtel staff personnel in the Office of the Chief Mechanical Engineer who were not assigned to the Limerick Project and are referred to as "off-project." The 1983 Analysis was unique in that it was performed to analyze a vendor supplied component.

"Off-project" calculations for Limerick Unit #1 have been reviewed and have been determined to be classified as "Final", meaning that they incorporate final as-built plant information. In addition, no other analyses of this unique type were performed. Procedures in place today are more stringent in that "off-project" calculations must be reviewed for accuracy of assumptions and design input data by Bechtel Project personnel prior to acceptance.

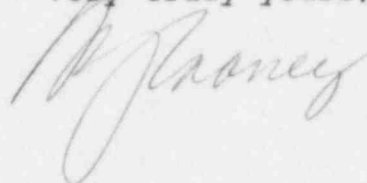
As a result of our investigation and the enhanced provisions of current Bechtel procedures, no additional actions are required to prevent recurrence of this condition.

Mr. R. W. Starostecki

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If you have any questions, please do not hesitate to contact us.

Very truly yours,

A handwritten signature in cursive script, appearing to read "J. J. Rooney".

Attachment

cc: Dr. T. E. Murley, Administrator
Mr. E. M. Kelly, Resident Inspector
See Service List