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DMB

September 18, 1985

Mr. James G. Keppler
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Dresden Station Units 2 and 3
Quad Cities Station Units 1 and 2
I.E. Bulletin 79-14 Piping Analysis
NRC Docket Nos. 50-237, 50-249,
50-254 and 50-265

Dear Mr. Keppler:

The purpose of this letter is to document the events which led to the discovery of three piping lines which were not included in the I.E. Bulletin 79-14 program. Attachment 1 provides background information and a description of the corrective actions taken subsequent to the discovery. Attachment 2 describes our program for reviewing the entire work scope of IEB 79-14 to verify all piping has been addressed. This review has been completed and identified four additional piping lines where the original 79-14 analysis did not encompass the entire piping run. Attachment 3 identifies these lines and describes our corrective actions currently in progress.

If you have any further questions on this matter, please contact this office.

Very truly yours,

J. R. Wojnarowski
Nuclear Licensing Administrator

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Attachment

cc: Dresden Resident Inspector
Quad Cities Resident Inspector

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ATTACHMENT 1

BACKGROUND

In early 1985, CECo personnel at the Quad Cities Nuclear Power Station identified a vibrational problem on a 4" HPCI cooling line on Unit 1. As part of the effort to resolve this problem, the original IEB 79-14 piping analysis was requested from NUTECH Engineers. This line was within NUTECH's scope of work under the "Small Bore" (4"O and smaller) piping tasks associated with the Mark I project. A review of project files indicated that no analysis was performed on the line because it met the Mark I 10% stress criteria. This criteria, established in NEDO-24522, states that no further evaluation of a load combination is required if the stresses from the Mark I loads are less than 10% of the allowable stress for that load combination. As a result, a new analysis was performed by Impell in order to resolve the vibrational problem and at the same time meet the necessary requirements of IEB 79-14. This work was performed as part of the Blume Curve Project and closed out along with the rest of that project. All analyses and subsequent modifications for this specific line were completed in June of 1985.

Based upon the information that this one line was not included in the 79-14 piping analyses, a detailed review of the small bore piping scope of work for 79-14 was performed by NUTECH. The review methodology utilized the line lists generated during the Mark I project for all small bore lines attached directly to the torus or attached to large bore (greater than 4"O) lines attached to the torus. The line lists, which were generated during the Mark I program by NUTECH, are comprehensive tabulations derived from P&ID reviews and confirmed by walkdowns in the field. The line lists were compared to the Mark I/79-14 analysis files to identify all 2-1/2", 3" and 4" diameter lines that were not analyzed by NUTECH.

This review revealed that two additional small bore lines did not have the necessary 79-14 evaluation in place. One of the lines is another 4" pipe at Quad Cities Unit 2 in the HPCI system. Only a portion of the line is safety related. The other line is a 4" pipe at Dresden Unit 2 in the Pressure Suppression System. Again, only a portion of the line is safety-related. Neither line is part of the Safe Shutdown Piping. All of the other small bore lines were confirmed to have been analyzed by either NUTECH or Impell.

CORRECTIVE ACTIONS

Immediately after confirmation that these lines did not have proper 79-14 documentation, an operability assessment was initiated. This assessment showed that both systems met all the previously established IEB 79-14 interim operability stress criteria. After establishing the operability of both lines, a formal piping analysis was started. Modifications to pipe supports are anticipated to be required for both lines. The current schedule for completion of the analyses and all associated modification designs is September 30, 1985. A schedule for installation of the modifications will be established upon completion of our analysis of four additional lines as described in Attachment 3.

ACTIONS TO PRECLUDE FUTURE OCCURENCES

As a result of this discovery, Commonwealth Edison has performed a post-analysis review of the entire IEB 79-14 scope of work to verify that all piping was addressed. Each AE that participated in the 79-14 program has identified the piping for which 79-14 analyses were performed. This information was compared with a master line list of all piping within the 79-14 program. A project plan was generated and implemented by Impell, NUTECH and S&L to assure consistency of documentation during this verification activity (Attachment 2).

This review has identified four additional small bore piping lines which require further analysis under IEB 79-14. These lines are discussed in Attachment 3.

ATTACHMENT 2

79-14 Analysis Coordination Plan

1. Purpose

The purpose of this plan is to verify the interface between NUTECH, Impell and Sargent & Lundy to assure that all piping within the IEB 79-14 scope was addressed. This plan standardizes the approach for ease of correlation and collation of data during joint AE interface sessions.

2. Procedure

The reference documents for assessing the completeness of the 79-14 analyses are the P&IDs for Quad Cities Station - Units 1 and 2 and Dresden Station - Units 2 and 3. Sargent and Lundy is tasked with providing copies of the latest P&IDs to all participants.

Each AE shall perform the following tasks in preparation for the joint coordination sessions:

a. Use colored highlighters to indicate the model boundaries of each analysis. Alternating colors are suggested to better illustrate the separation/overlap between analyses.

b. Indicate clearly (suggest magic marker) the physical responsibility points within the model boundaries. "Physical responsibility" is the portion of the piping for which the AE performed required modifications.

c. While marking up the P&IDs, the attached table should be developed, providing the following information:

   i. P&ID (drawing number).

   ii. Line number (complete line identification number per the P&ID).

   iii. Analysis number (AE's file or model identification number).

   iv. Revision/date (latest revision and date of latest revision of IEB 79-14 scope).

   v. Interface termination location (description of the physical responsibility boundaries for the analysis).

   This table, generated in order of line number by unit, will be formally issued to Commonwealth Edison Company as each AE's input of lines addressed per IEB 79-14.

d. In marking up the P&IDs and developing the summary table, there may be lines that are within an AEs realm of responsibility, but are not clearly addressed by an existing analysis. These should be summarized in the formal issuance of the 79-14 Analysis Summary Table for further investigation during the subsequent joint coordination sessions.

e. Each organization will apply its Quality Assurance program towards ensuring proper transfer of information from the summary and design reports and math models to the P&IDs and 79-14 Analysis Summary Table.

f. Upon completion of items "a" through "e", a series of coordination sessions will be held among the AE's to:

   i. Produce a master set of P&ID's, illustrating the extent of each AE's analysis. Unique colors will be assigned to each AE. Compare these master P&ID's to the red colored safety-related P&ID's of 1980 to ensure that all safety-related lines have been addressed.

   ii. Combine the information on each of the Summary Tables to one consolidated table for issuance to the NRC. This consolidated table will reflect the most recent analysis for each piping line within the IEB 79-14 scope.

   iii. The master reference P&IDs and consolidated summary table will provide the basis to identify any lines not currently covered by an analysis.

3. Action

Each AE is directed to incorporate this plan as a Project Instruction.

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(STATION/UNIT)

79-14 ANALYSIS SUMMARY

P & ID	Line No.	Analysis	Revision/Date	Interface Termination Location

ATTACHMENT 3

ADDITIONAL PIPING LINES REQUIRING

SUPPLEMENTAL 79-14 ANALYSIS

During the comprehensive review of the IEB 79-14 work scope, four additional small bore piping lines requiring further analysis under IEB 79-14 were identified. Two 3-inch pipes in the Dresden 2 LPCI system and two 3-inch pipes in the Dresden 3 LPCI system were previously analyzed for 79-14 loads up to an anchor location. However, there exists a portion of safety-related piping after the anchor which was not analyzed.

An operability assessment has been initiated to determine compliance with the interim operability stress criteria of IEB 79-14. A piping walkdown will be performed as part of the evaluation. This assessment is scheduled to be completed by October 15, 1985. Upon completion of this assessment, a 79-14 analysis will be performed to determine whether modifications are required. Due to the relatively short length of the unanalyzed piping segment, we anticipate that the interim operability criteria will be met and that the 79-14 analysis will show that modifications are not required. This analysis is expected to be completed by November 15, 1985.

Upon completion of the above described 79-14 analysis, we will establish a schedule for the installation of the modifications to the two lines described in Attachment 1 and for any additional modifications required for the four LPCI lines described above. The conclusions of our evaluation and schedule for modifications will be forwarded to you when completed.

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