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

JUN 14 1982

MEMORANDUM FOR: Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

FROM: James P. Knight, Assistant Director
for Components and Structures Engineering
Division of Engineering

SUBJECT: LA SALLE COUNTY STATION UNITS 1 & 2 - REACTOR DRYWELL FRAMING

REFERENCES:

1. Meeting with ONRR staff, Region III staff, Commonwealth Edison (CE) and Sargent & Lundy (S&L) at S&L's office on January 13, 1982.
2. Letter from V. Reklaitis of S&L to R. Rose of CE, dated May 18, 1978.
3. Conference call between SEB staff, Region II staff and S&L on February 2, 1982.
4. Letter from C. W. Schroeder of CE to C. E. Norelius of NRC, dated February 26, 1982.

In January 1982, Region III requested the assistance of MEB and SEB staff to resolve two issues regarding the reactor drywell framing. D. Terao of MEB and N. Chokshi of SEB met with Region III staff, CE and S&L personnel to discuss these issues (Ref. 1).

The first issue concerns the framing connection between the beam Nos. 175 and 176 in drywell area. During an inspection by Region III staff, a discrepancy was discovered between the installed connection and the connection as shown in the design drawing. This discrepancy was an omission of a stiffner plate. The MEB reviewed the governing load on the structural beams 175 and 176. The governing load is due to the reaction forces of a pipe whip restraint (R-77) acting on the beam during a postulated main steam pipe rupture event. The pipe whip restraint (R-77) on beam 176 (which is connected to beam 175) is designed for both circumferential and longitudinal breaks postulated at the first elbow of the main steam piping downstream from the pipe whip restraint (R-77).

The longitudinal breaks are restrained by two pipe whip restraints (R-77 and R-78) with one restraint at each end of the piping elbow. Thus, the pipe whip load is distributed between two structural supporting beams. As a result, the beam (176) is affected by only 30% of the longitudinal blowdown force.

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The circumferential break is, therefore, the governing load for the beams (175 and 176). The circumferential break postulated on the main steam piping will cause the broken pipe to whip vertically in an upwards direction. There is no direct pipe whip loading in a downwards direction that could impose a compressive buckling load on the web of the structural beam (175). However, Sargent & Lundy conservatively assumed that the circumferential break pipe whip load could act in both a vertical upwards and downwards direction.

The SFB reviewed the calculations with respect to this connection. These calculations indicate that the connection is adequate without the missing stiffner plate. In fact, S&L indicated that the missing stiffner plate was provided for the only purpose of following S&L's standard practice in the design of such connection and was not required by calculations. It is also our understanding that the missing stiffner plate has been installed and the connection is in conformance with the drawing. We find that the design of connection is adequate and it follows standard engineering practices.

The second issue concerned the slotted hole connections for drywell steel framing. In order to accommodate the temperature rise to 340°F under loss of coolant accident (LOCA) condition, the beams in the drywell at La Salle are allowed to expand freely by means of sliding connections. Region III requested that SEB staff review the installation and inspection procedure for these type of connections, since some of the bolts were found loose during a Region III inspection.

To achieve sliding connections, the S&L's installation procedure (Ref. 2) calls for hand tightening of the bolts using a spud wrench to a "snug tight" condition and then tightening a jam nut with a spud wrench while holding the other nut with another wrench, thus locking the two nuts together. The SEB staff had a conference call (Ref. 3) with region III staff and S&L to further clarify and understand the S&L's bolting procedure. During this conference call the SEB staff indicated concern regarding preload and behavior of jam nut in vibratory environment. In addition, inquiry was also made regarding the previous history of similar usage. The CE in Ref. 4 provided additional information addressing these concerns.

Based on our review of information in Refs. 2 and 4 and the conference call (Ref. 3), we find that the S&L's procedures for sliding connections are adequate. However, we suggest that the Section 4.2.1 of Appendix E of FSAR should be amended to accurately reflect the use of these procedures.

Our review findings were conveyed to Region III staff informally - in a telephone conversation - at an earlier time.

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cc: See Page 3

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