U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-295/80-08; 50-304/80-08

Docket No. 50-295; 50-304 License No. DPR-39; DPR-48

Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

Facility Name: Zion Station, Units 1 and 2

Inspection At: NRC, Region III, April 21, 1980
Bergen-Paterson Pipe Support Corporation
Laconia, NH, May 15-20, 30 and 31, 1980

Inspection Dates: April 21, May 15-20, 30, and 31, 1980

Inspector: for I. T. Yin 6/18/80

Approved By: D. H. Danielson, Chief 6/18/80
Engineering Support Section 2

Inspection Summary

Inspection on April 21, May 15-20, 30, and 31, 1980 (Reports No. 50-295/80-08 and 50-304/80-08)
Areas Inspected: Special inspection of Bergen-Paterson large bore hydraulic snubbers installed on Unit 2 steam generators. The inspection involved 60 inspector-hours by one NRC inspector.
Results: No items of noncompliance or deviations were identified.

DETAILS

Persons Contacted

Meeting at NRC Region III Office on April 21, 1980

Licensee Employees

W. F. Naughton, Nuclear Licensing Administrator
J. Wennerholm, Zion Technical Staff
G. Pliml, Assistant Superintendent
C. Richardson, SNED

Sargent & Lundy Engineers

R. B. Johnson, Project Engineer

NRC Region III

D. H. Danielson, Chief, Engineering Support Section 1
I. T. Yin, Reactor Inspector

Inspection at Bergen-Paterson Pipe Support Corporation (B-P) on May 5-20, 30, and 31, 1980

B-P Personnel

H. Erikson, Vice President, Chief Engineer
K. Asmundsson, Product Manager
W. F. Becksted, QA Manager

Commonwealth Edison Company (CECO) Representative

J. Wennerholm, Zion Technical Staff

Functional or Program Areas Inspected

This report was written in conjunction with RIII Inspection Reports No. 50-295/79-26 and No. 50-304/79-25. RIII followup of items 4 to 9 as a result of the licensee-NRC meeting held on January 10, 1980 at the NRC-IE:HQ was the reason and scope of this inspection.

Prior to the scheduled Unit 2 refueling outage, licensee's drafted steam generator snubber test procedure was forwarded to NRC-RIII, IE:HQ, and NRR for review and concurrence. After collecting all the comments within NRC, a meeting was held at RIII office with the licensee representatives on April 21, 1980 to discuss the comments. The revised procedure was submitted to RIII and was again commented on by the RIII personnel. Subsequently, a brief meeting was held at RIII on May 6, 1980, and an acceptable procedure was issued by Zion staff on May 8, 1980.

No significant gouging or scoring of the ram surface was observed during inspection and disassemblies at the B-P shop, except minor scratches were identified on X-7 and X-9 units (CECO Steam Generator 2B Nos. 23 and 24 snubbers). The piston rod (ram) surfaces were repaired, and the gland seals were modified with aluminum-bronze inserts. In addition to the above as-modified units, X-13 and X-14 (CECO Steam Generators 2A No. 20 snubber, and 2B No. 21 snubber) were also selected to be tested to check for proper lockups and creeping (Bleed Rate) under design loading conditions.

The tests conducted simulated plant normal operating conditions, upset conditions such as severe earthquakes, and emergency conditions such as breaking of the high pressure, high temperature primary pipe systems.

The final test report is being prepared by the licensee and B-P technical and QA/QC staff. The inspector will review the test report upon its completion, but for the time being, the following issues have been communicated to the licensee and B-P for evaluation and implementation:

1. Improper function of the bleed valve pressure compensator unit that required hardware modification by replacing the positioning spring with a stiffer spring should be further evaluated to assess whether or not a long term system improvement is warranted. It was noted that the problem identified during the Unit 2 snubber testing had resulted in the unscheduled shutdown of Zion Unit 1 for replacement of steam generator snubber control valve blocks.

2. During and subsequent to the extended LOCA steam test, fluid was observed boiling out of the reservoir, flange seal was observed leaking fluid, and corrosion was found in the bleed valve areas within the control valve block. The cause of these problems and a system evaluation to take into consideration actual design considerations should be undertaken by CECO, B-P, and S&L.

3. Particles in the fluid were found in the control valve block that had caused plugging up of the bleed orifice. Filtering of the fluid internally and externally should be considered in conjuction with Item 1 above. With the stiffer positioning spring, the needed function of the pressure compensator has most likely been removed, and the bleed rate is now obtained mainly by the pressure stepdown fluid passage ports and the bleed orifice.

Exit Interview

The inspector met with licensee representative during and at the near completion of the snubber testings to discuss technical issues, procedure revisions, and design modifications. Subsequent to the tests, telecon between RIII management and CECO had been held to discuss the need for further long term system operability evaluations.