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VICE PRESIDENT - NUCLEAR

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PY-CEI/NRR-1374 L

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Perry Nuclear Power Plant
Docket No. 50-440
Snubber Optimization Program,
R.G. 1.84 and ASME Code Case N-411-1
Application and Clarification

Gentlemen:

The purpose of this letter is to inform you of the planned snubber optimization program at the Perry Nuclear Power Plant (PNPP) and to identify our application of ASME Code guidance which will require performance of a case-specific evaluation and NRC review of that evaluation.

Historically, snubbers were extensively used in piping analysis to mitigate the effects of earthquake and other dynamic loads. Perry, as well as much of the industry, has found that snubbers are complex and require extensive maintenance and functional testing programs to assure reliable snubber and piping system performances. These programs have resulted in increased levels of occupational radiation exposure and increased plant operating and maintenance costs. As a result of these concerns, Technical and Steering Committees on piping were organized by the Pressure Vessel Research Committee (PVRC) with active industry and USNRC participation. These groups have developed more realistic methods for dynamic analysis.

At the next refueling outage, which commences in March 1992, PNPP will start implementing the snubber optimization program. The four major goals of our program are to improve safety, reduce occupational radiation exposure, decrease maintenance costs, and to improve system reliability. The refuel outage efforts will be concentrated on systems within the Unit 1 drywell, specifically reactor recirculation, feedwater, reactor water cleanup, and all associated branch piping within the drywell. Once these initial systems are complete, our intention is to continue the program for other systems and other areas of the plant where similar benefits can be realized.

One of our analytical techniques used for snubber optimization is the application of ASME Code Case N-411-1. This Code Case is currently recognized in Regulatory Guide 1.84, "Design and Fabrication Code Case Acceptability, ASME Section III Division 1", Revision 27 dated November 1990. There exist

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five conditions within Reg. Guide 1.84 which must be met to implement the Code Case. PNPP intends to comply with all five conditions, however, the fifth condition requires a case-specific evaluation to be performed (with subsequent review by the NRC) for application of the Code Case on piping in which intergranular stress corrosion cracking (IGSCC) has occurred. PNPP has feedwater system piping which through previous Inservice Examination (in refuel outage #2) has shown "indications" of potential IGSCC and for which snubber reduction is also planned utilizing Code Case N-411-1. Specifically, our letter dated March 25, 1991 (PY-CEI/NRR-133/L), which is attached for information, identified ultrasonic testing indications on two welds associated with the feedwater RPV nozzle to safe end welds. The indications were conservatively assumed, for analysis purposes, to be the result of stress corrosion cracking. That letter and technical analysis has been reviewed by your staff. The NRC letter dated September 12, 1991 noted that following inspection and evaluation of the identified indications during the third refueling outage, NRC approval will be required prior to startup.

Concurrent with the plans for snubber optimization implementation on the feedwater system during our third refuel outage, we are also scheduling a mechanical stress improvement process (MSIP) at the two feedwater system welds containing the indications. The MSIP is expected to successfully arrest any crack growth.

It is recognized that the NRC has established criteria in Generic Letter 88-01 for when applications of stress improvement will be considered to effectively mitigate cracks (from a regulatory standpoint); i.e., the crack does not exceed 30% through-wall or 10% of the circumference. Assuming cracking has not progressed past these criteria, the case-specific evaluations for this situation will recognize the effectiveness of MSIP in mitigating further growth. Assuming cracking has grown beyond these criteria, the evaluations will take into account post-MSIP crack size inspection results. All evaluations will consider any revised nozzle weld loadings (and resultant stresses) following implementation of snubber optimization, and the evaluation will keep applicable stresses within pertinent ASME Code allowables. The evaluation results will also be provided for NRC review prior to restart from the third refueling outage.

All of the feedwater MSIP and feedwater snubber reduction work is planned to be implemented during our third refuel outage which is presently scheduled to start in March 1992. If the NRC staff has any questions or concerns related to snubber optimization on the feedwater system prior to receipt of the case-specific evaluation, please feel free to call, and any necessary discussions will be supported. It would be appreciated if any such questions could be discussed prior to December 1, 1991, in consideration of the refuel outage scheduling process.

Sincerely,

Steven A. Kenaich for MDL

Michael D. Lyster

MDL:MJH:sc
Attachment
cc: NRC Project Manager
NRC Resident Inspector Office
NRC Region III