



**CENTERIOR  
ENERGY**

**PERRY NUCLEAR POWER PLANT**

10 CENTER ROAD  
PERRY, OHIO 44081  
(216) 259-3737

Mail Address:  
P.O. BOX 97  
PERRY, OHIO 44081

**Michael D. Lyster**  
VICE PRESIDENT - NUCLEAR

February 4, 1991  
PY-CEI/NRR-1303 L

Director, Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Perry Nuclear Power Plant  
Docket No. 50-440  
10 CFR Part 21 Notification -  
E-Systems Hydraulic Snubbers

Gentlemen:

Pursuant to the requirements of 10CFR21.21(b)(2), the NRC was notified on February 1, 1991 of a 10CFR21 reportable condition identified at the Perry Nuclear Power Plant (PNPP). The condition involves the finding that Nitrile, rather than Ethylene Propylene Diene Monomer (EPDM), was used as a seal material in several E-Systems hydraulic snubbers installed in the PNPP, Unit 1.

Enclosed are three copies of the written report which is being submitted in accordance with 10CFR21.21(b)(2) and (b)(3).

If you have any questions, please feel free to call.

Sincerely,

Michael D. Lyster

MDL:GS:njc

Attachment

cc: A. B. Davis, Region III  
USNRC Project Manager  
USNRC Resident Office  
USNRC Document Control Desk

Operating Companies  
Cleveland Electric Illuminating  
Toledo Edison

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vi. The Number and Location of Basic Components

PNPP was furnished with a total of 21 E-Systems snubbers under Specification SP-527. All 21 of these snubbers are located in the drywell. There are fifteen 50 KIP E-Systems snubbers (PN-152005) and six 70 KIP snubbers (PN-152007). Of these 21, three 50 KIP snubbers are located on the Residual Heat Removal (RHR) system, two 50 KIP snubbers are located on the Low Pressure Core Spray (LPCS) system and two 50 KIP snubbers are located on the High Pressure Core Spray (HPCS) system. Eight 50 KIP and six 70 KIP snubbers are located on the Feedwater system.

vii. Corrective Actions

During the investigation, it was determined that the two weeping snubbers were located in the general area of two Feedwater system valves which had been leaking steam during the first operating cycle. These leaking valves were repaired during RFO-1. All E-Systems hydraulic snubbers in this local hot spot area were rebuilt using the proper seal material (EPDM) during RFO-2.

An engineering evaluation has been performed on the substitute Nitrile seals that were exposed to PNPP's worst case ambient environment (upper drywell). The compression set on these Nitrile seals was found to be approximately 60%. The Bayonet seals are a static type of seal and will perform their intended function with a compression set of up to approximately 90%. A field walkdown was performed of E-Systems hydraulic snubbers that were physically accessible at the time of this evaluation during RFO-2. All fifteen 50 KIP E-Systems snubbers and two of the 70 KIP E-Systems snubbers were visually inspected. With the exception of the two snubbers previously identified, no other snubbers within this sample were found to have any signs of weepage. Based upon the engineering evaluation of the Nitrile snubber seals and based upon their location (Bayonet area), it has been determined that the snubbers will perform their intended function for a minimum of at least one more operating cycle.

A Nonconformance Report has been issued against E-Systems snubbers from several different procurement specifications with varying manufacturing dates. Fifty-three snubbers are conservatively contained within this suspect population. Nine of these 53 were rebuilt using EPDM seals during RFO-2. The remainder will either be rebuilt using EPDM seals, or will be totally removed from the plant through snubber reduction efforts prior to reactor startup following RFO-3.

10CFR21 Report on E-Systems Hydraulic Snubbers

i. Name of Person Notifying the Commission

E. Riley - Director, Perry Nuclear Assurance Department

ii. Identification of Facility and Basic Component

Perry Nuclear Power Plant, Unit I  
Snubbers Manufactured by E-Systems  
E-Systems Part Numbers - 152005 (50 KIP)  
152007 (70 KIP)

iii. Identification of Firm Supplying the Basic Component

The snubbers were manufactured by: E-Systems, Montek Division, Salt Lake City, Utah and procured through Specification SP-527 issued to Pullman Power Products.

iv. Nature of Defect and Safety Hazard Created

Six E-Systems hydraulic snubbers installed on Class 1 portions of the feedwater system were found to have Bayonet seals composed of Nitrile instead of Ethylene Propylene Diene Monomer (EPDM) as required by vendor design documents. All six snubbers had a manufacturing date of April 1982, and all six were procured through Specification SP-527. One 50 KIP and one 70 KIP E-Systems snubber were found with signs of minor hydraulic fluid leakage (weepage), which subsequently led to the identification of the substitute seal material. A chemical evaluation was performed on the seal material and it was identified as being Nitrile rather than EPDM. An engineering evaluation was then performed on the Nitrile seal material with the conclusion that any remaining snubbers containing Nitrile will perform their safety function through at least the next operating cycle, and therefore no safety hazard exists through the same period.

v. Date Information was Obtained

January 30, 1990