



**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

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

Perry Nuclear Power Plant
Docket No. 50-440
Inoperable Loose-Part Detection
System Instrumentation - Special Report

Gentlemen:

Attached is a Special Report concerning inoperable Loose-Part Detection System Instrumentation. This report satisfies the conditions of Perry Technical Specifications 3.3.7.8 and 6.9.2.

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

Sincerely,

Michael D. Lyster

MDL:SC:njc

Attachment

cc: NRC Project Manager
NRC Resident Office
NRC Region III

Operating Companies
Cleveland Electric Illuminating
Trust, Inc.

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Special Report - Inoperable Loose Parts Detection System Instrumentation

On April 18, 1991 channel 3 of the Vibration and Loose Parts Monitoring (V&LPM) System alarmed and the system tape recorder failed to turn on. Troubleshooting was initiated immediately and it was determined that the V&LPM system was operating normally with the exception that Channel 3 was spuriously alarming. Channel 3 was declared inoperable and the Plant entered Technical Specification Action Statement 3.3.7.8, which requires the submittal of a Special Report to the Commission within the next 10 days after one or more V&LPM channels has been inoperable for more than 30 days. The 30 day time limit to restore channel 3 to service was exceeded on May 18, 1991. All aspects of the Technical Specification Action Statement have been met.

This system is designed to continuously monitor the Nuclear Boiler for any indication of loose parts in the Nuclear Boiler System. Ten individual channels monitor the reactor vessel components with sensors physically mounted near natural collection areas. Each channel consists of a detector (accelerometer), preamplifier and signal processing electronics which input to a tape recorder, audible speaker, a db meter, control room annunciator, a spectrum analyzer, an x-y plotter, a loose part locator, and a printer. The channel 3 detector is mounted on an instrument line located in the drywell at the 646' elevation near the 90° azimuth.

Initial troubleshooting appeared to indicate that the alarms were caused by excessive flow noise during slow speed operation of the Reactor Recirculation Pumps. It was determined that the alarms were not caused by a loose part. The pumps were later shifted to fast speed and efforts were made to clear the alarm. Numerous such attempts proved unsuccessful. Following this, the characteristics of the signals generated at various frequencies were evaluated. It was found that the alarms are being generated by a noise spike in the 60 hz range. It is believed that the problem resides in the cable to the detector or in the detector itself.

Present plant conditions do not allow access to the detector or to the cable, which prevents further troubleshooting at this time. Numerous activities occurred in the drywell during the forced outage preceding the alarm condition, and it is possible that damage to the cable or to the detector could have occurred then. Possible corrective actions include replacement of the cable or the detector. The channel will remain inoperable until the root cause of the problem has been determined and the spurious alarm condition has been corrected. This will occur at the next convenient opportunity allowing drywell entry.

With channel 3 out of service, 9 of 10 installed V&LPM channels remain operable and the V&LPM system still meets the intent of Regulatory Guide 1.133 by maintaining at least two sensors operable at each natural collection region (reactor vessel upper and lower plenums). Therefore, continued operation with channel 3 out of service is considered to be acceptable.